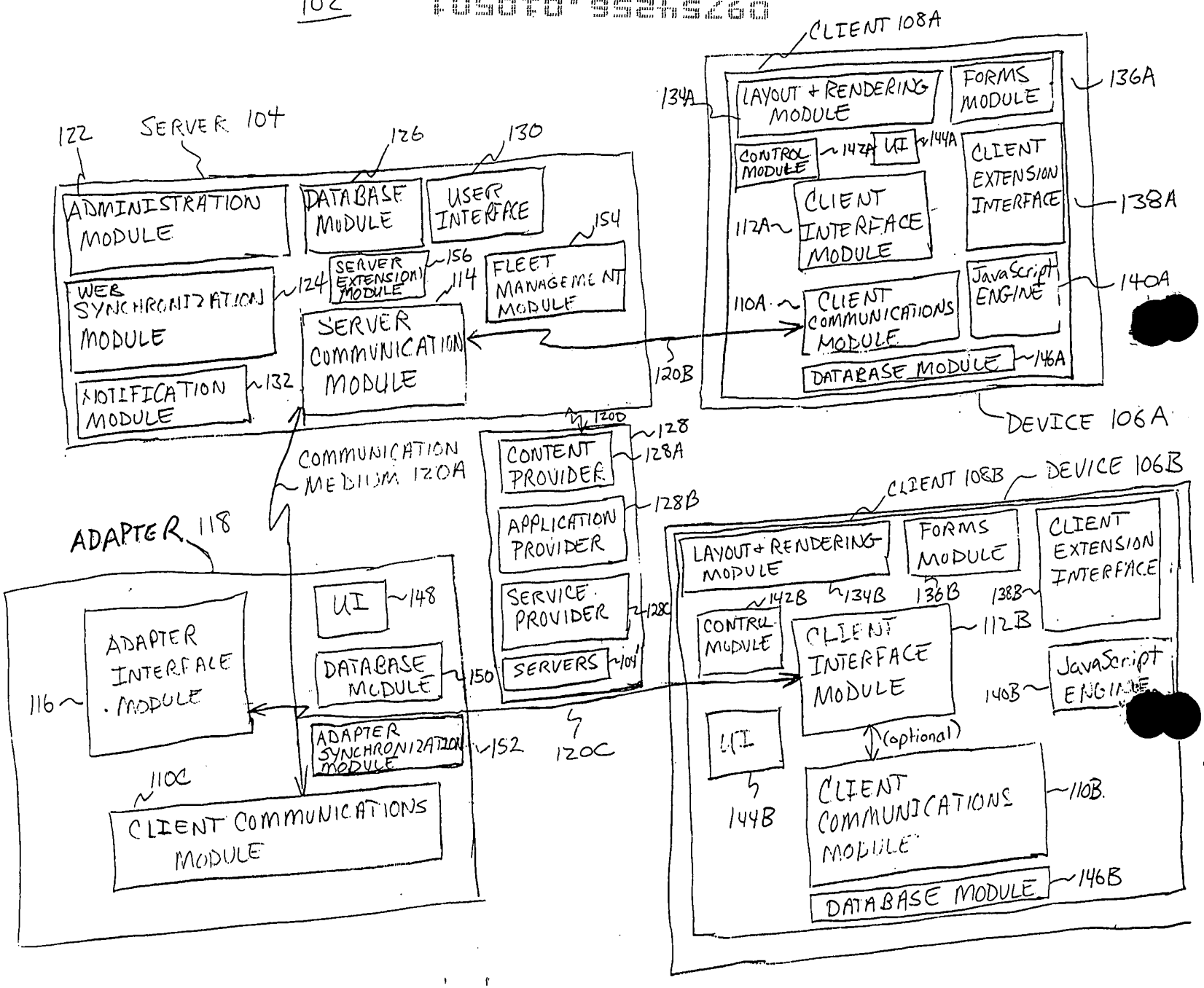


FIG. 1A

Best Available Copy

TOSOTO 9521560

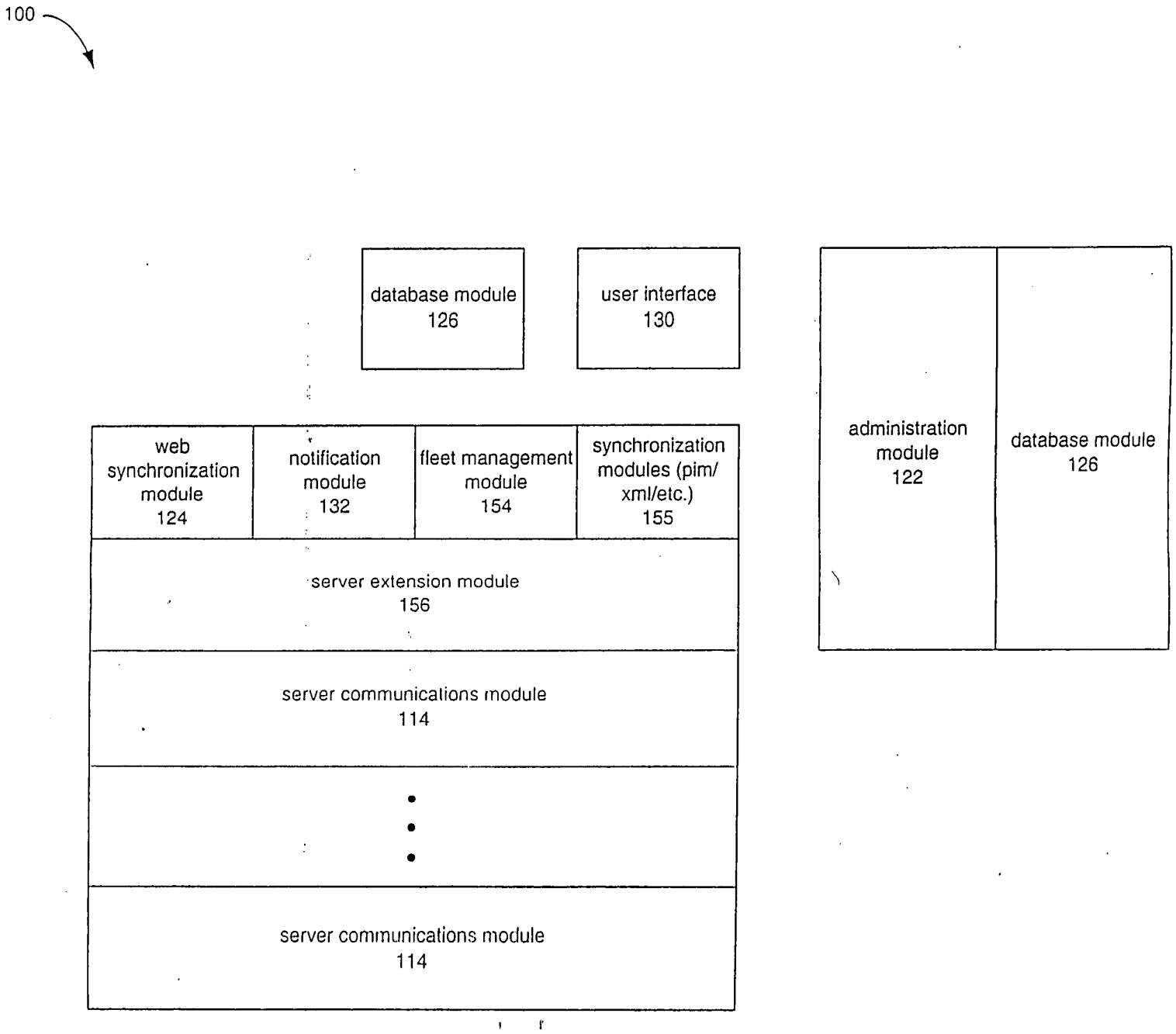


FIG. 1B

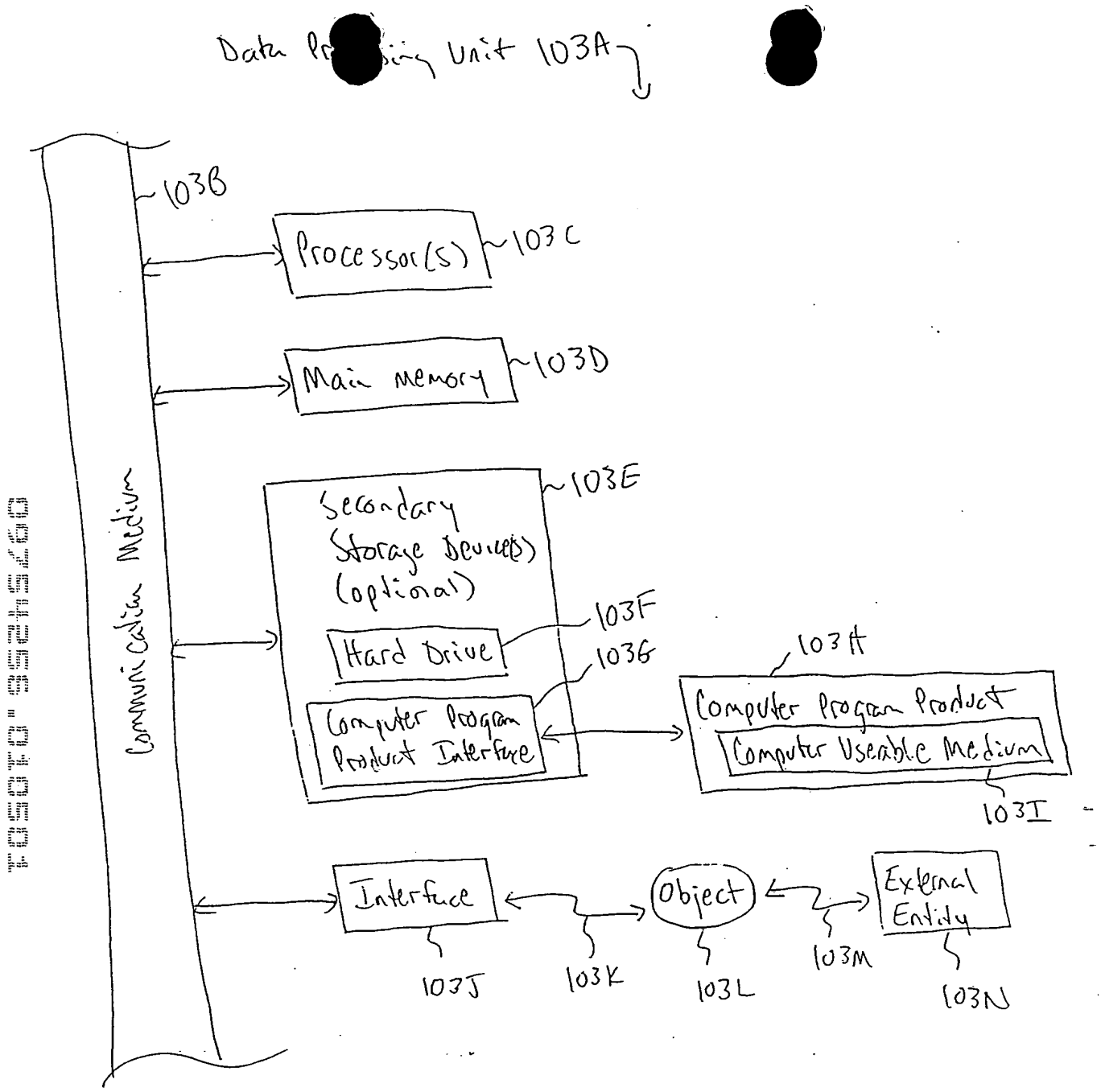

Data Processing Unit 103A
103B
Communication Medium
Processor(s)
103C
Main memory
103D
Secondary Storage Device(s) (optional)
103E
Hard Drive
103F
Computer Program Product Interface
103G
Computer Program Product
Computer Usable Medium
103H
103I
Interface
Object
External Entity
103J
103K
103L
103M
103N

FIG. 1B1

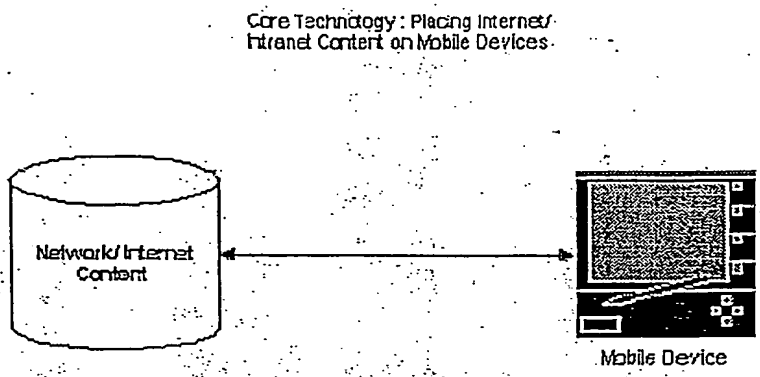

Core Technology : Placing Internet/
Intranet Content on Mobile Devices
Network/ Internet
Content
Mobile Device

FIG. 1C

[redacted] Mobile Device/Server Environment

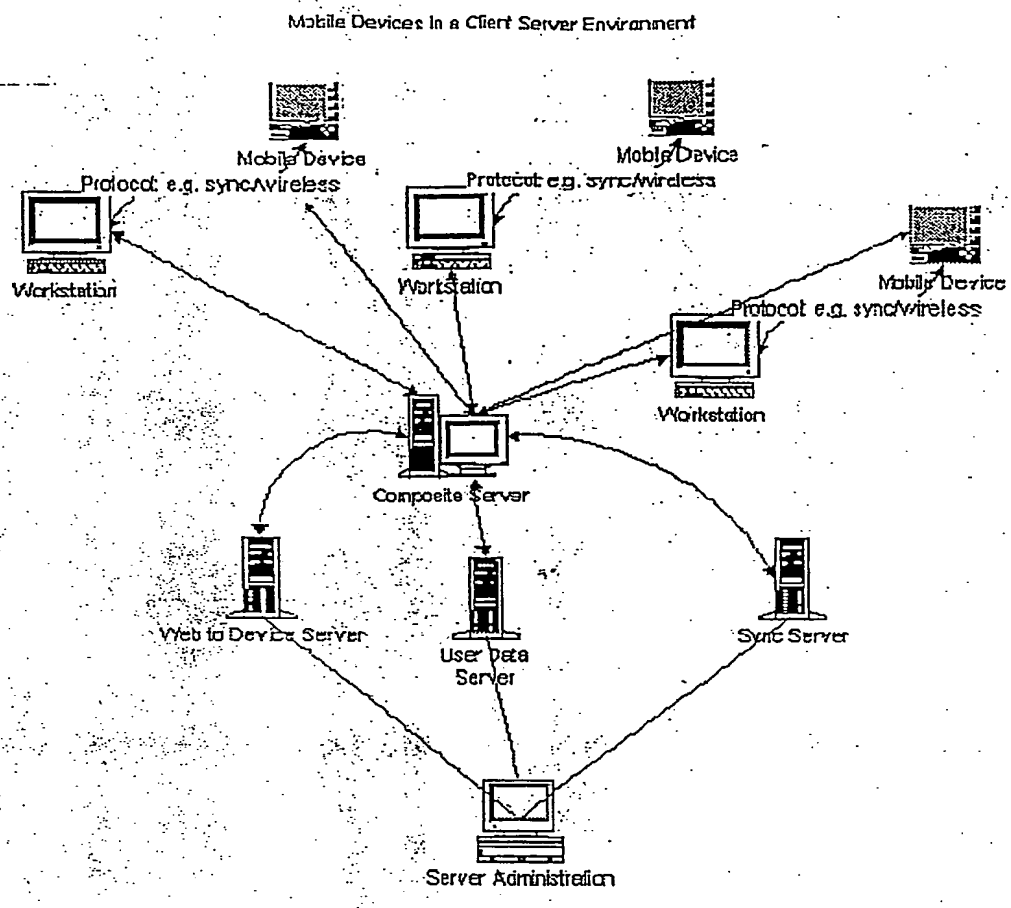


FIG. 1D

09545565 - 010501

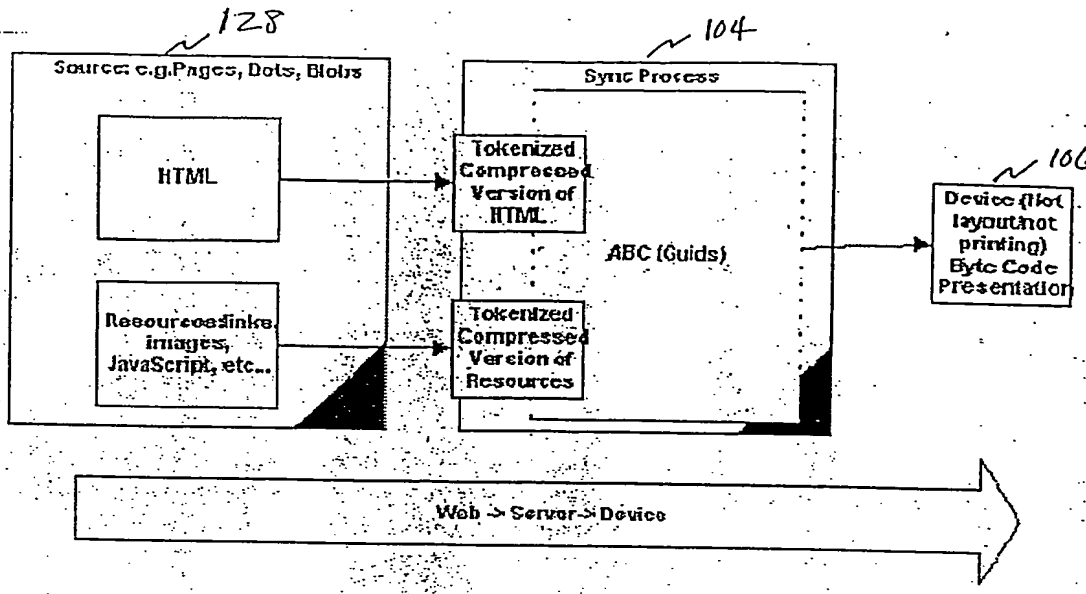

Downstream Protocol
128
Source: e.g.Pages, Dots, Blobs
HTML
Resourcesdinks, images, JavaScript, etc...
104
Sync Process
Tokenized Compressed Version of HTML
ABC (Guids)
Tokenized Compressed Version of Resources
106
Device (Not layout/not printing) Byte Code Presentation
Web -> Server -> Device

FIG. 1E

One Up/One Down Sync

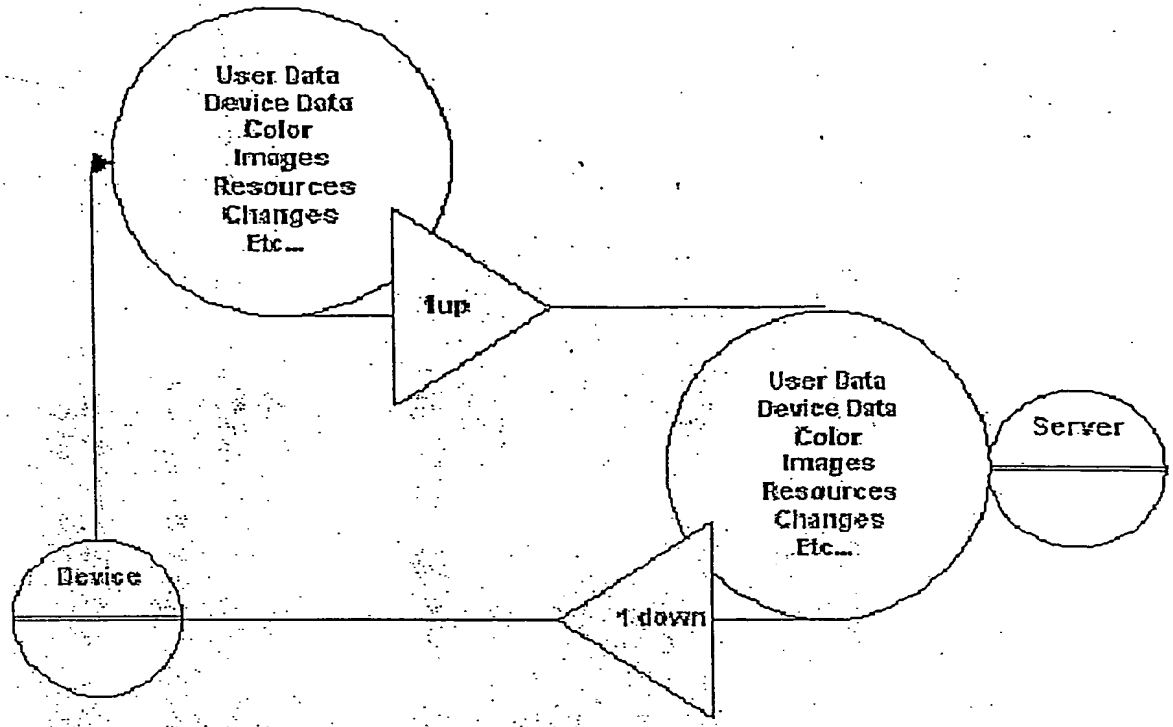


FIG. 1F

09525625 - 020604

Sync Process

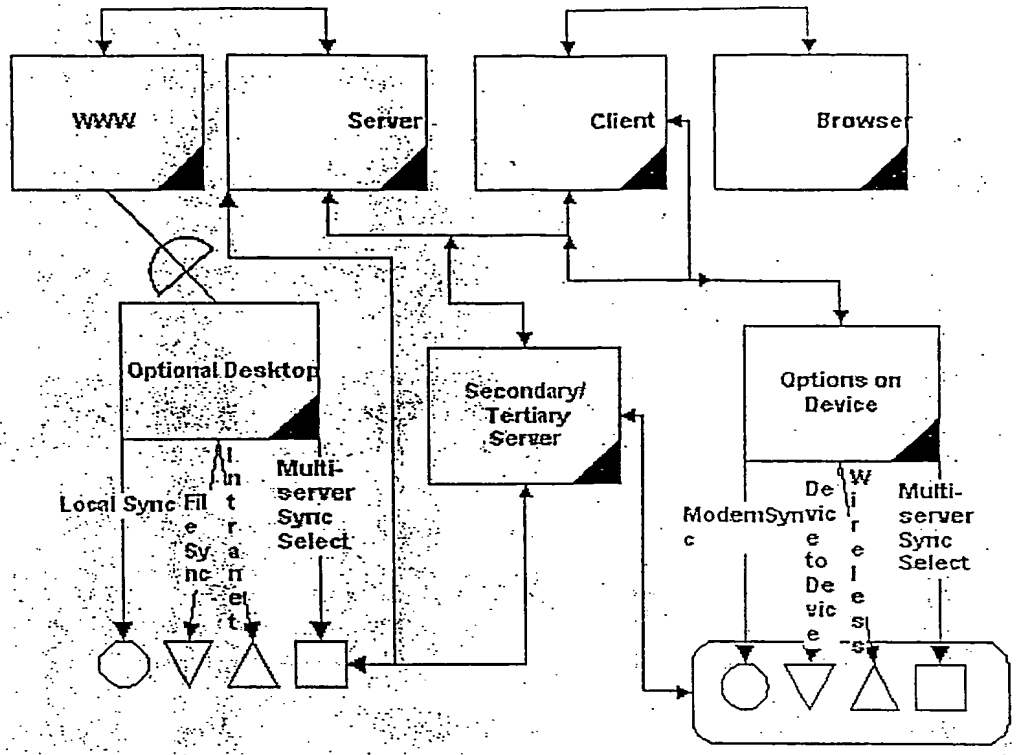


FIG. 1G

Granular Variable Protocol

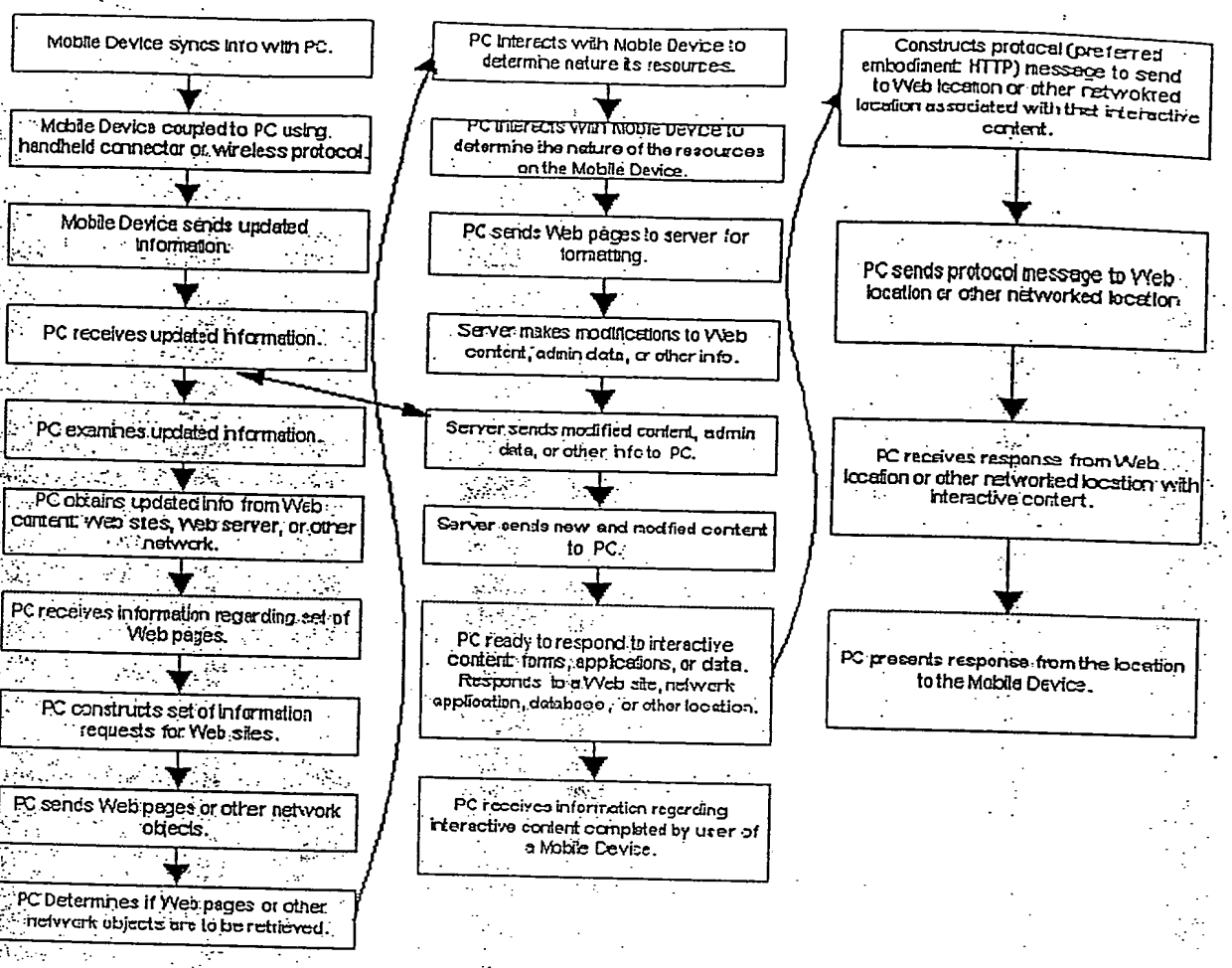


FIG. 1H

Optimization: An Example

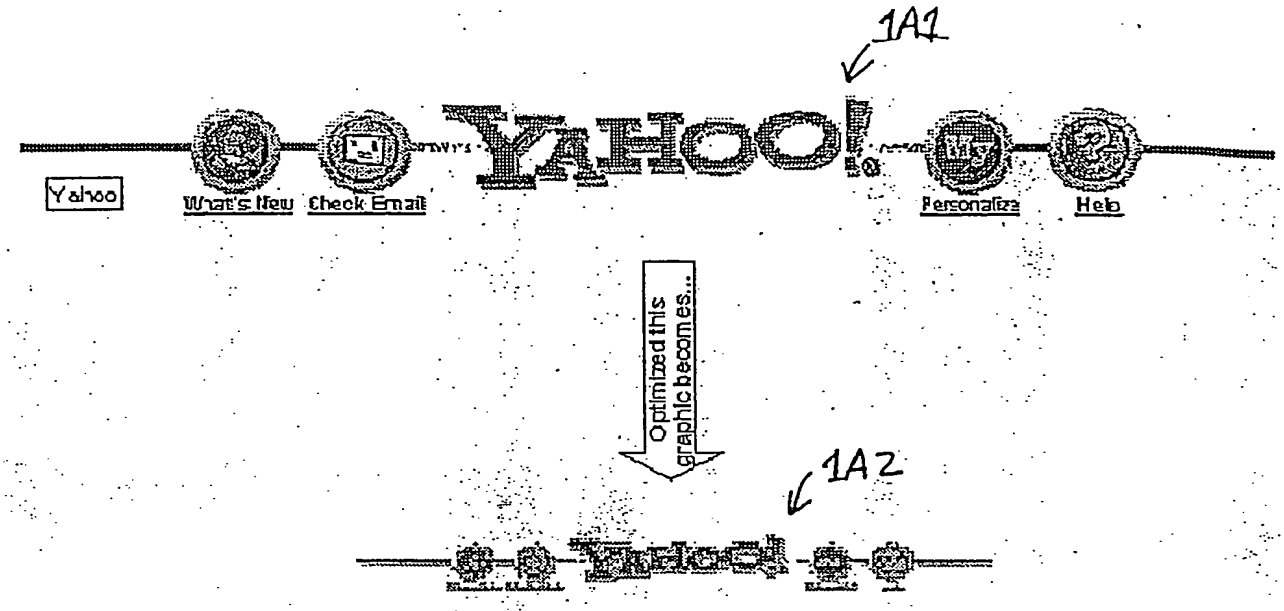


FIG. 1I

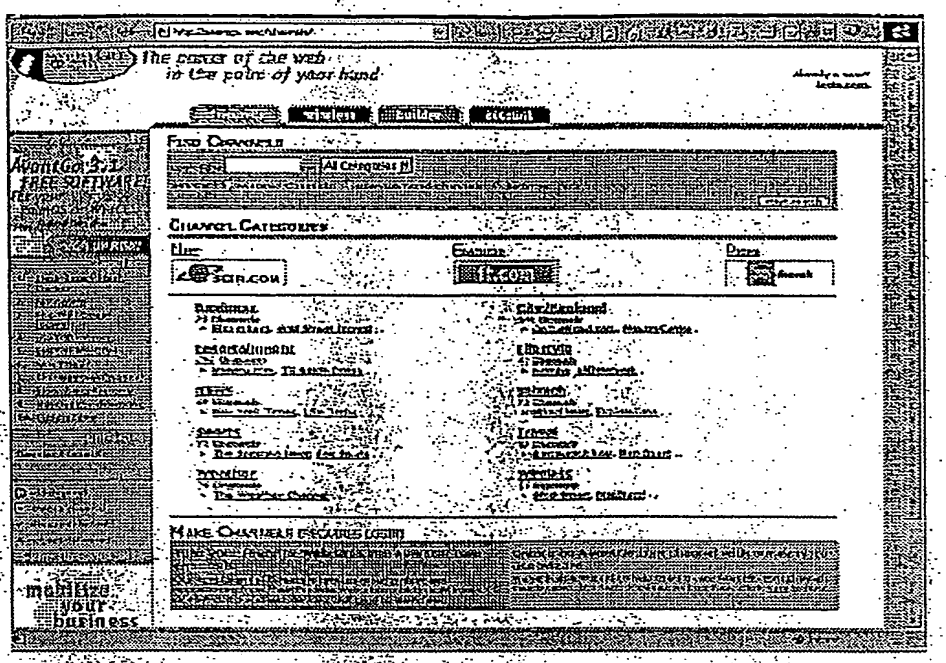

The center of the web is the palm of your hand
Find Channels
Channel Categories
mobilize your business

FIG. 1J

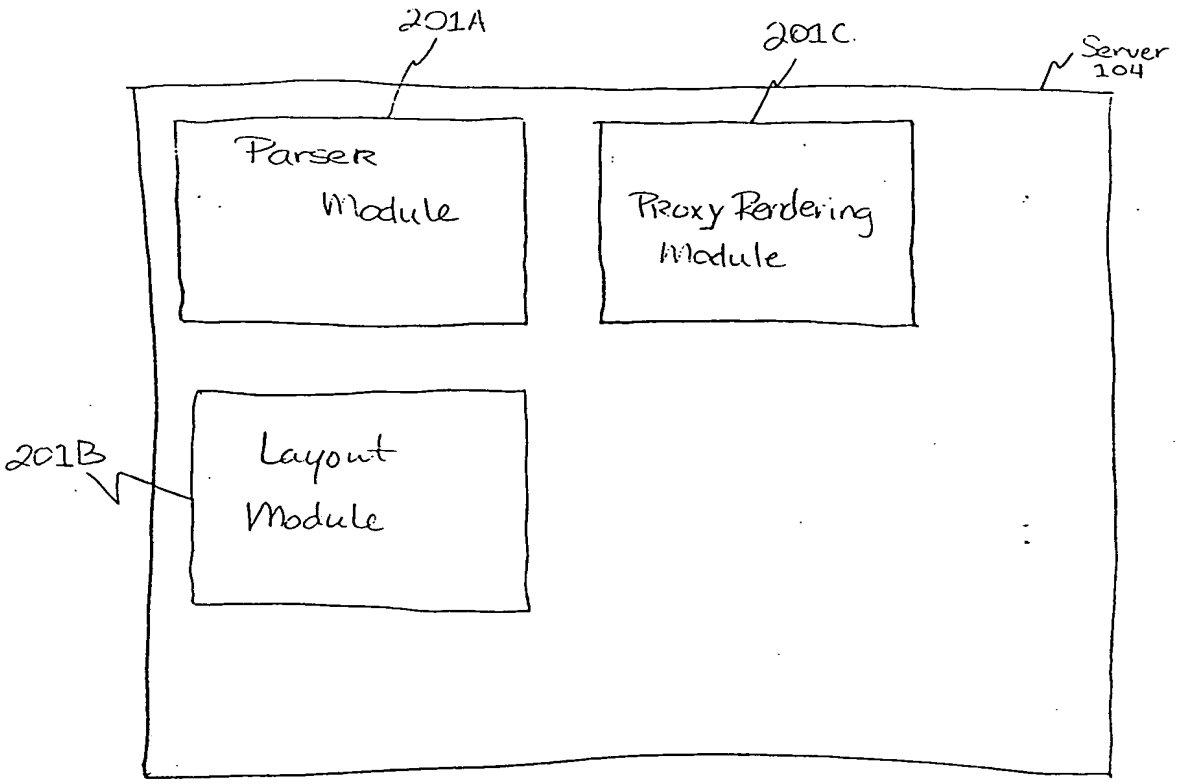

201A
201C
Server 104
Parser Module
Proxy Rendering Module
201B
Layout Module

FIG. 2A

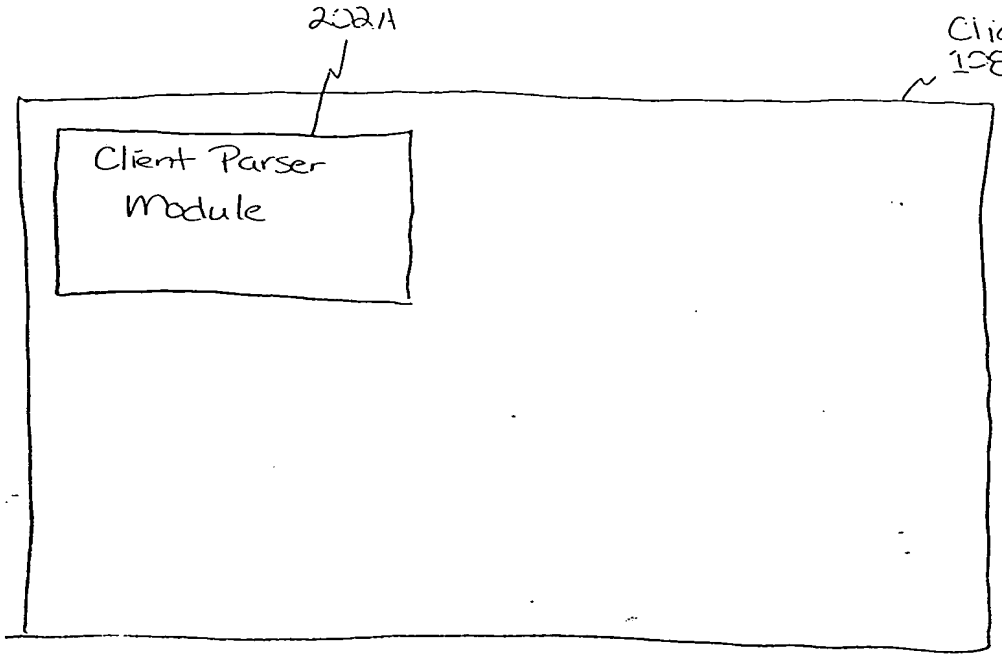


FIG. 2B1

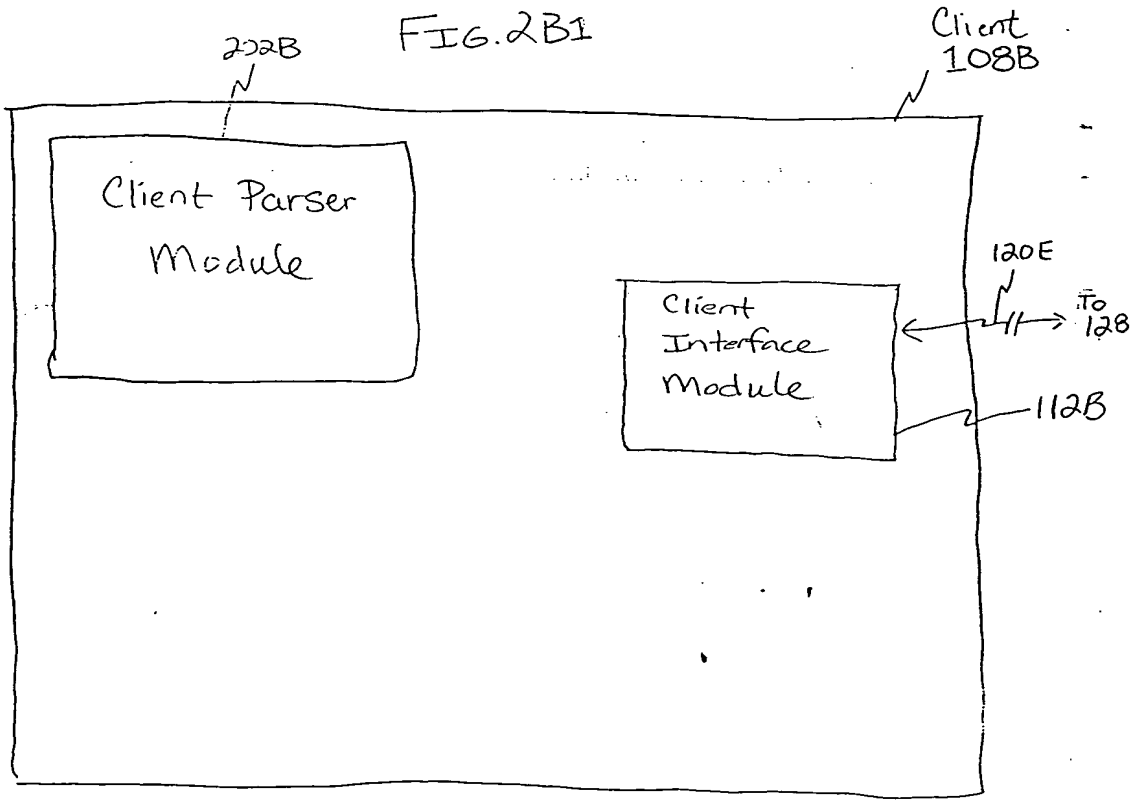


FIG. 2B2

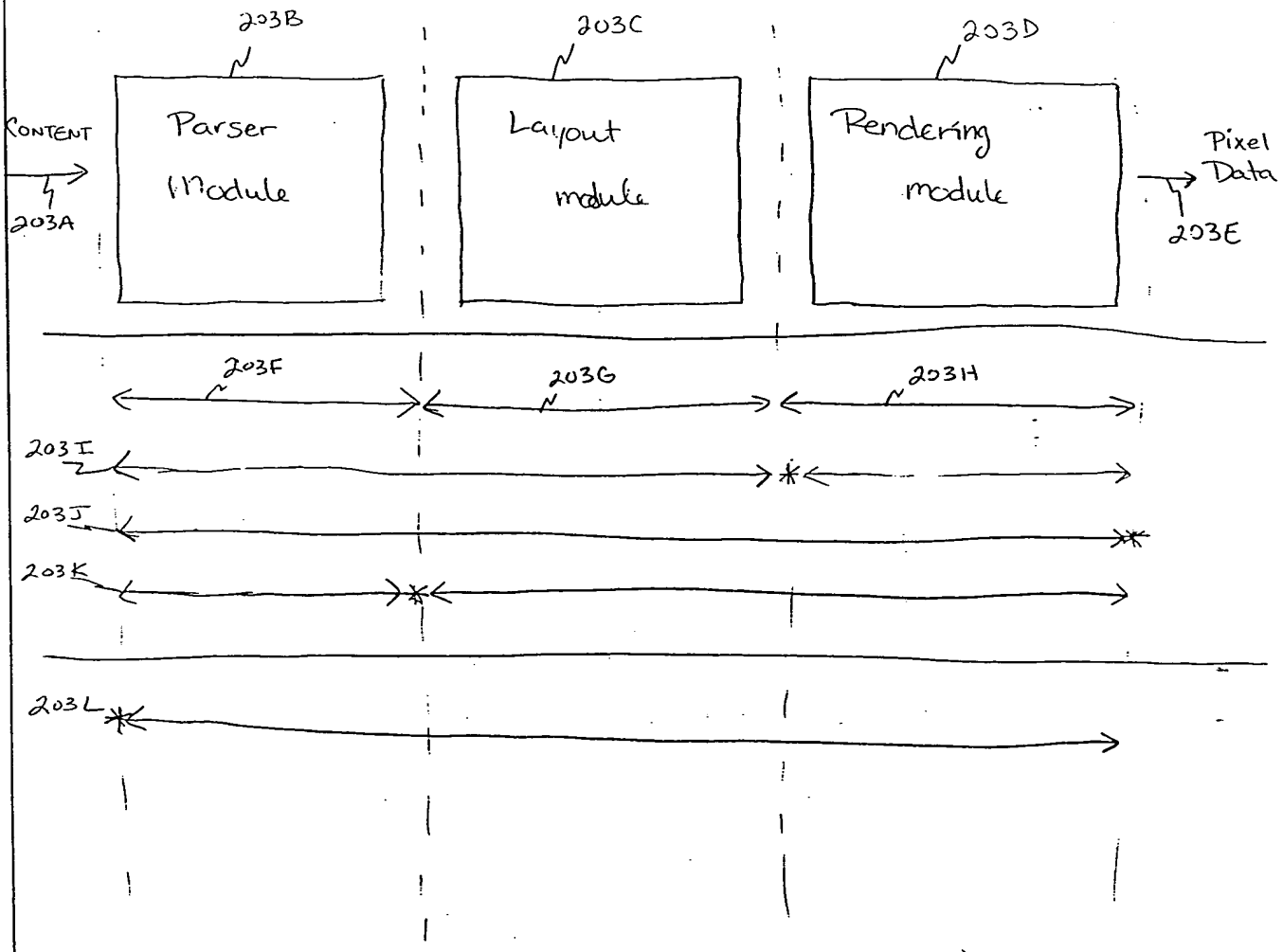

203B
203C
203D
Content
Parser Module
Layout module
Rendering module
Pixel Data
203A
203E
203F
203G
203H
203I
203J
203K
203L

FIG. 2C

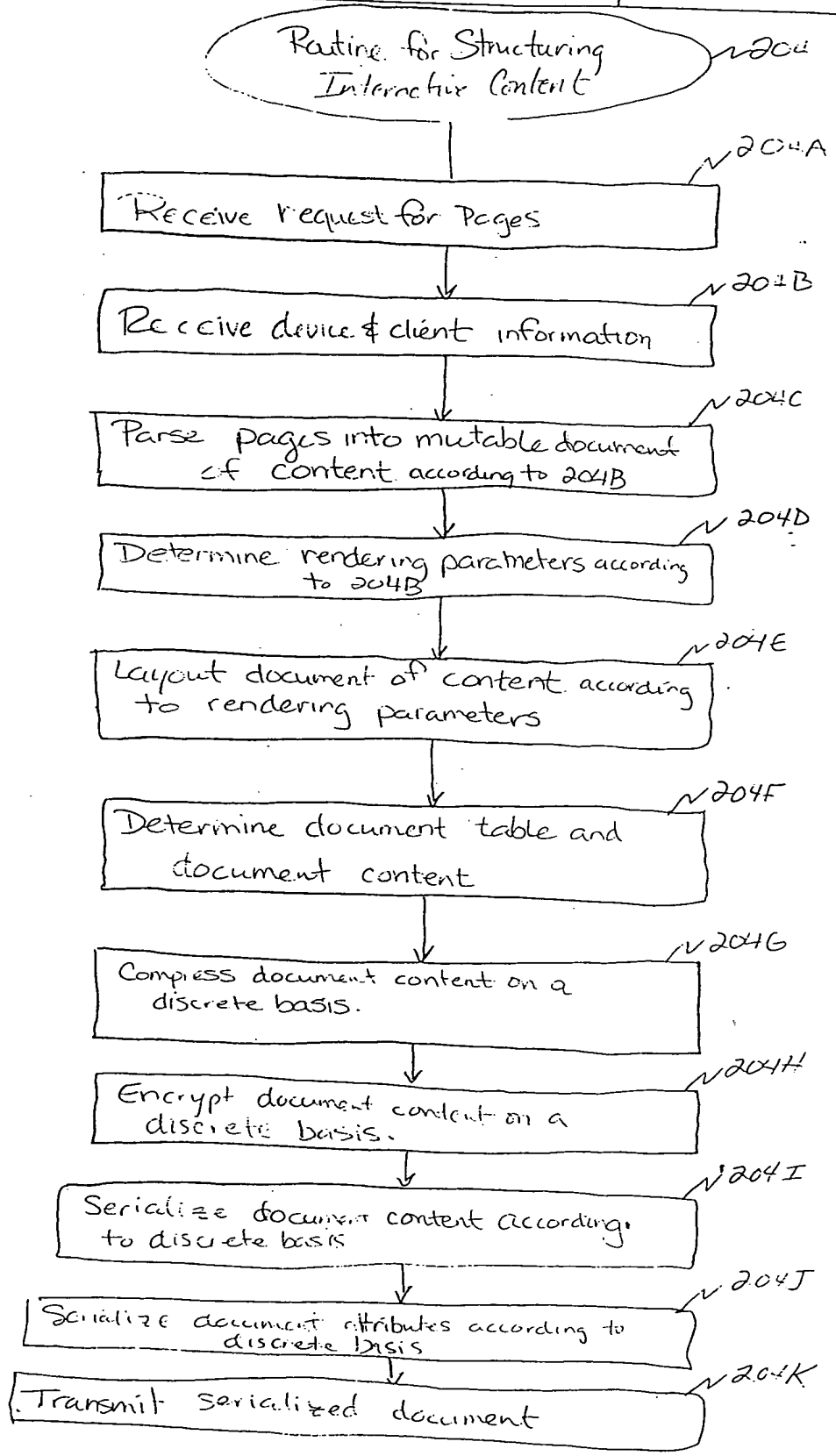

Routine for Structuring Interactive Content
204
204A
Receive request for Pages
204B
Receive device & client information
204C
Parse pages into mutable document of content according to 204B
204D
Determine rendering parameters according to 204B
204E
Layout document of content according to rendering parameters
204F
Determine document table and document content
204G
Compress document content on a discrete basis.
204H
Encrypt document content on a discrete basis.
204I
Serialize document content according to discrete basis
204J
Serialize document attributes according to discrete basis
204K
Transmit serialized document

FIG. 2D1

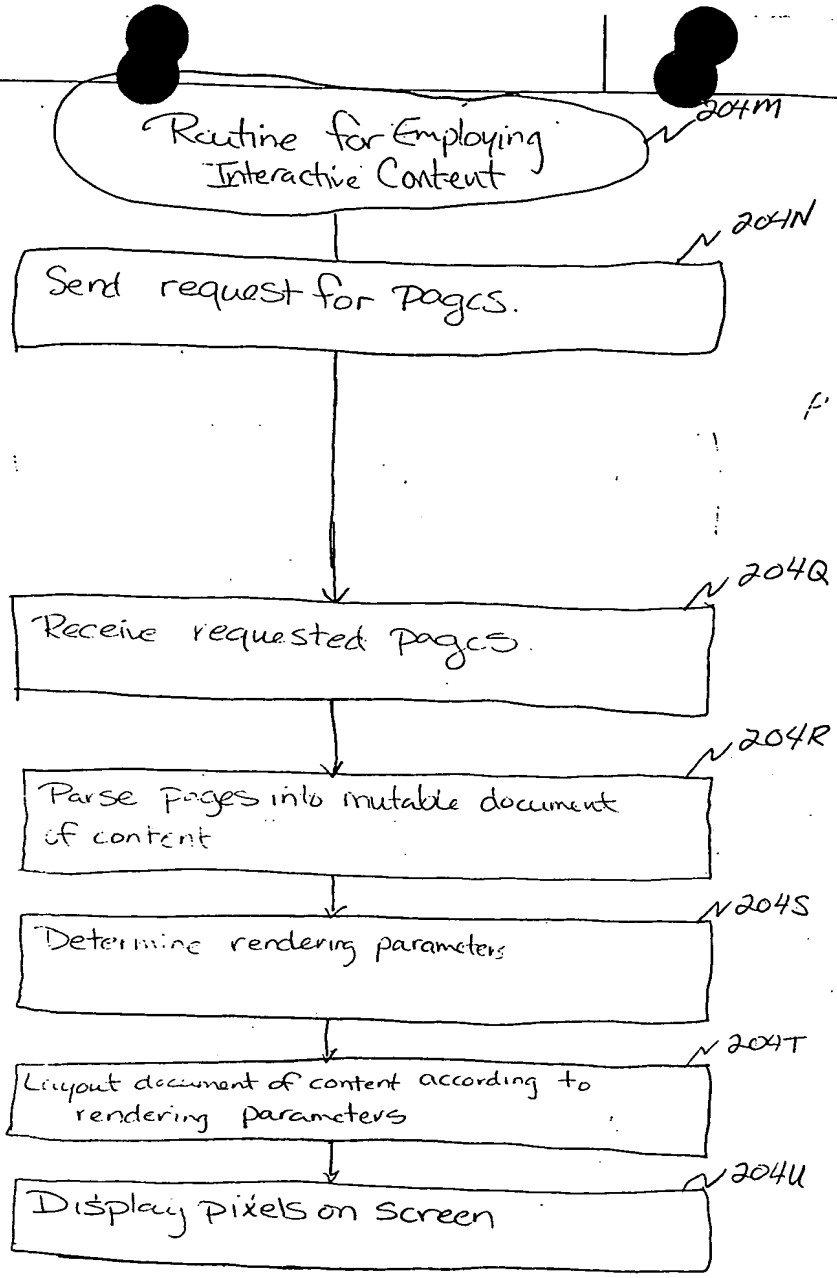

Routine for Employing Interactive Content
204M
Send request for pages.
204N
Receive requested pages.
204Q
Parse pages into mutable document of content
204R
Determine rendering parameters
204S
Layout document of content according to rendering parameters
204T
Display pixels on screen
204U

FIG. 2D2

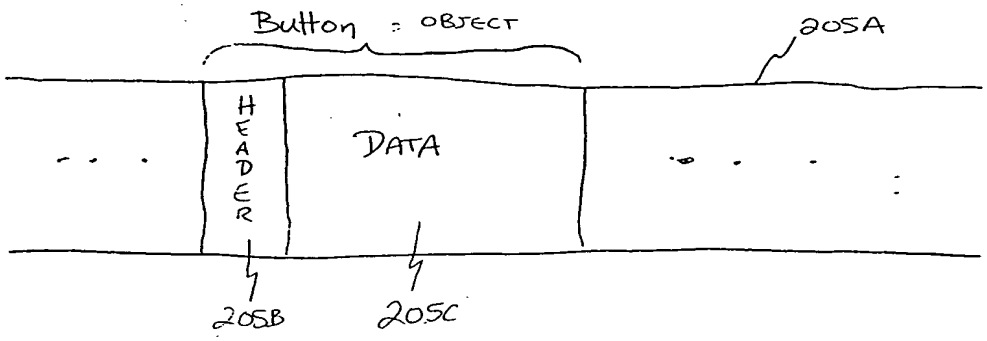


FIG. 2E

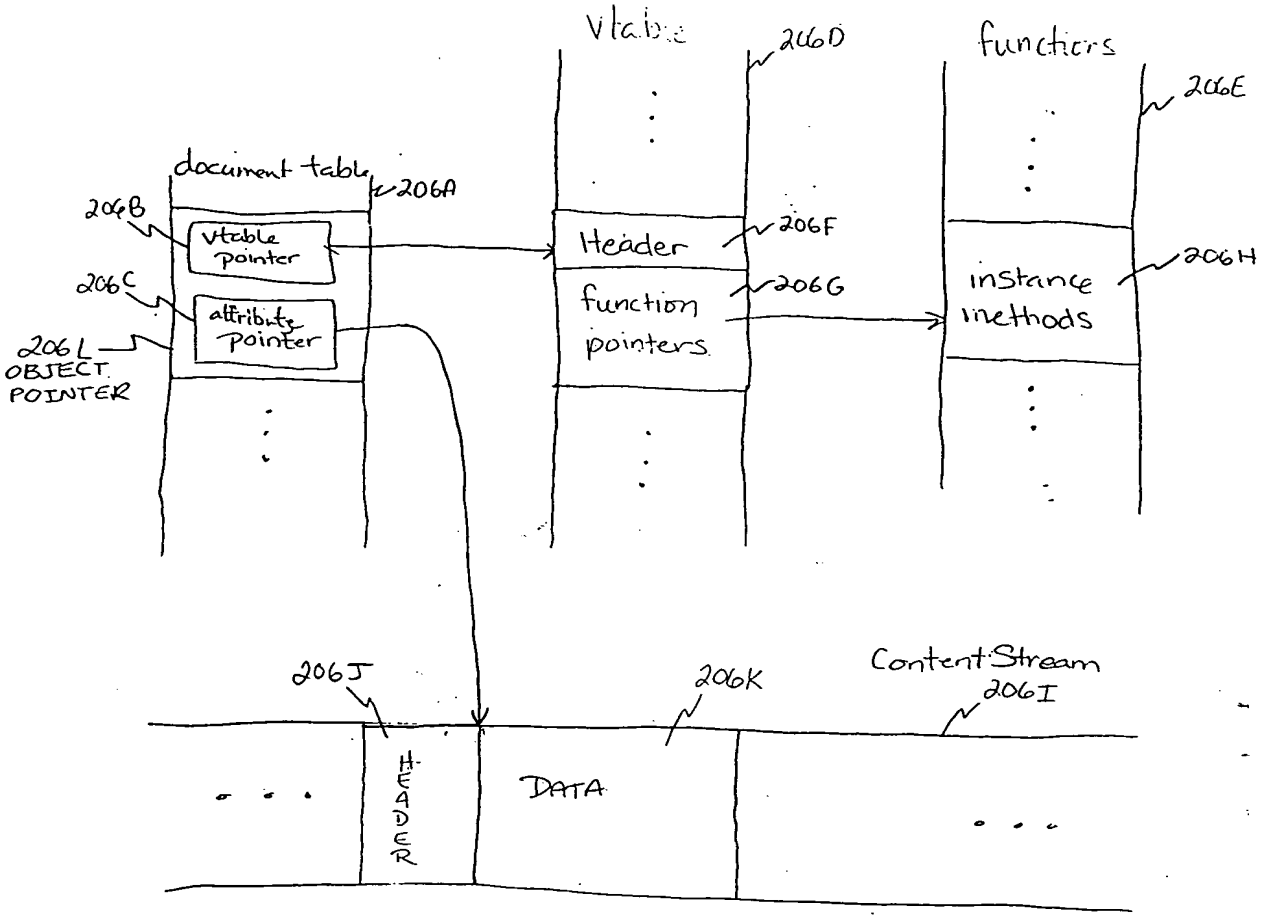

Vtable
206D
functions
206E
document table
206A
206B
Vtable pointer
206C
attribute pointer
206L
OBJECT POINTER
Header
206F
function pointers
206G
instance methods
206H
206J
206K
Content Stream
206I
HEADER
DATA

FIG. 2F1

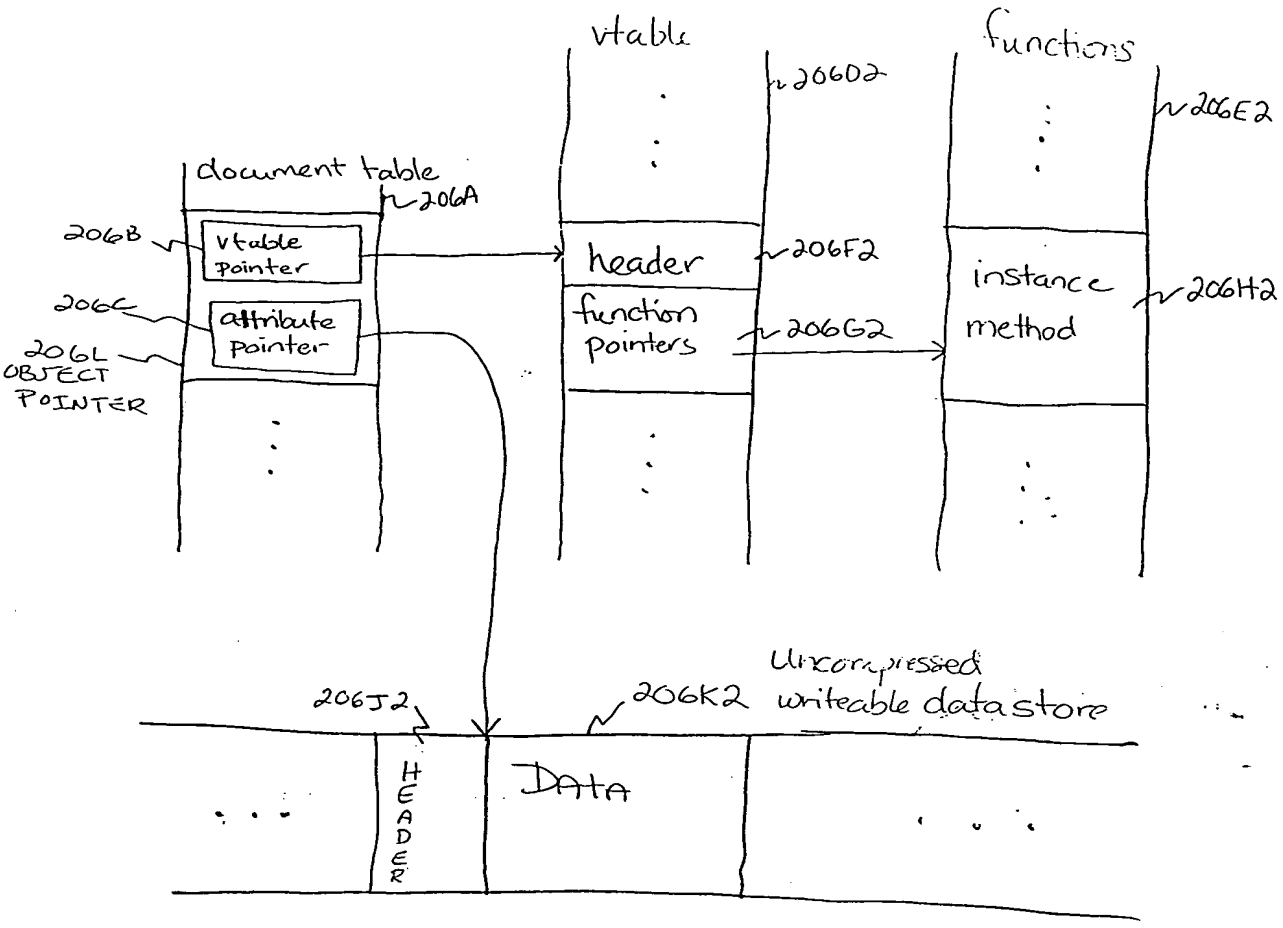

vtable
functions
206D2
206E2
document table
206A
206B
vtable pointer
206C
attribute pointer
206L
OBJECT POINTER
header
206F2
function pointers
206G2
instance method
206H2
Uncompressed writeable datastore
206J2
206K2
HEADER
DATA

FIG. 2F2

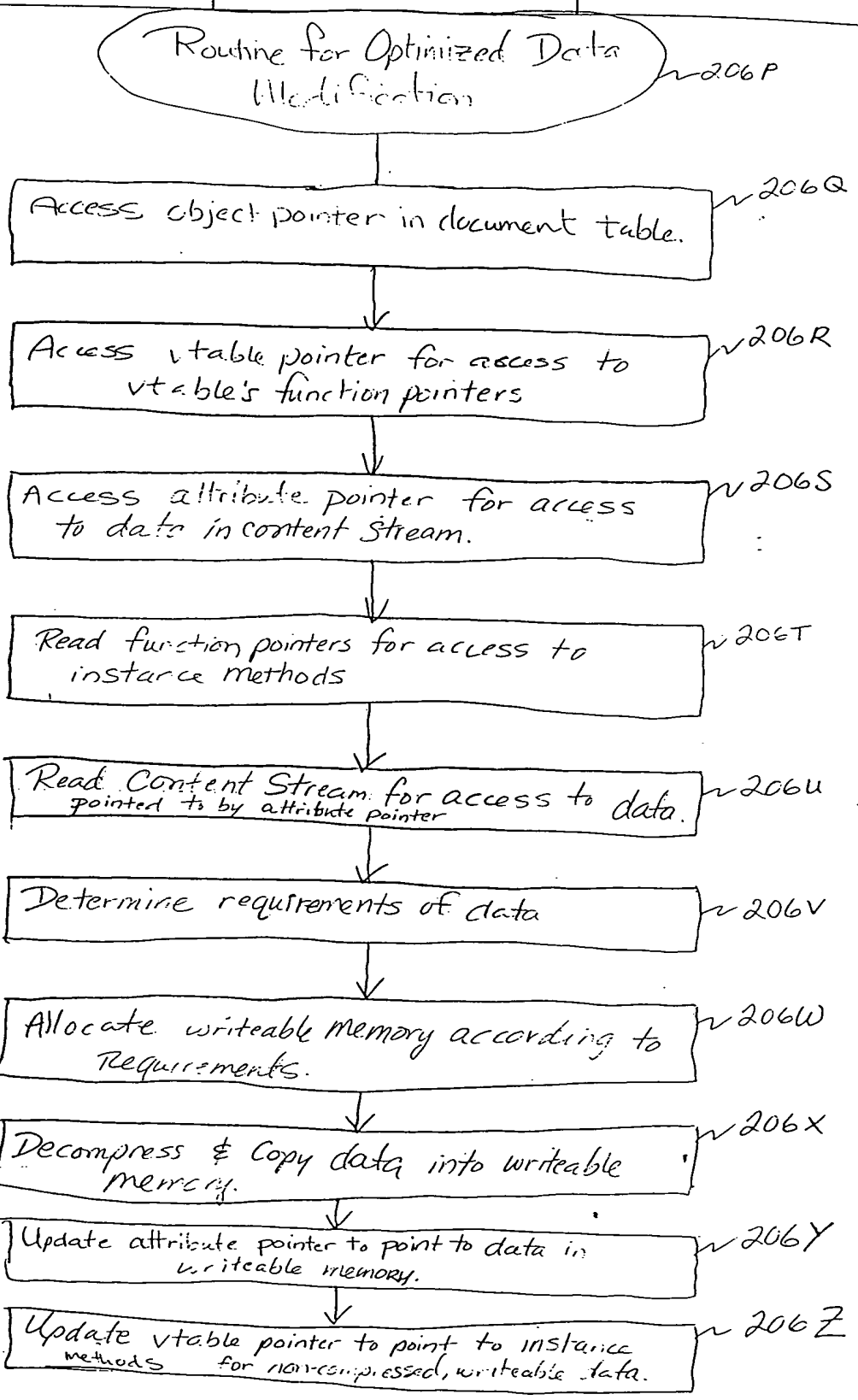
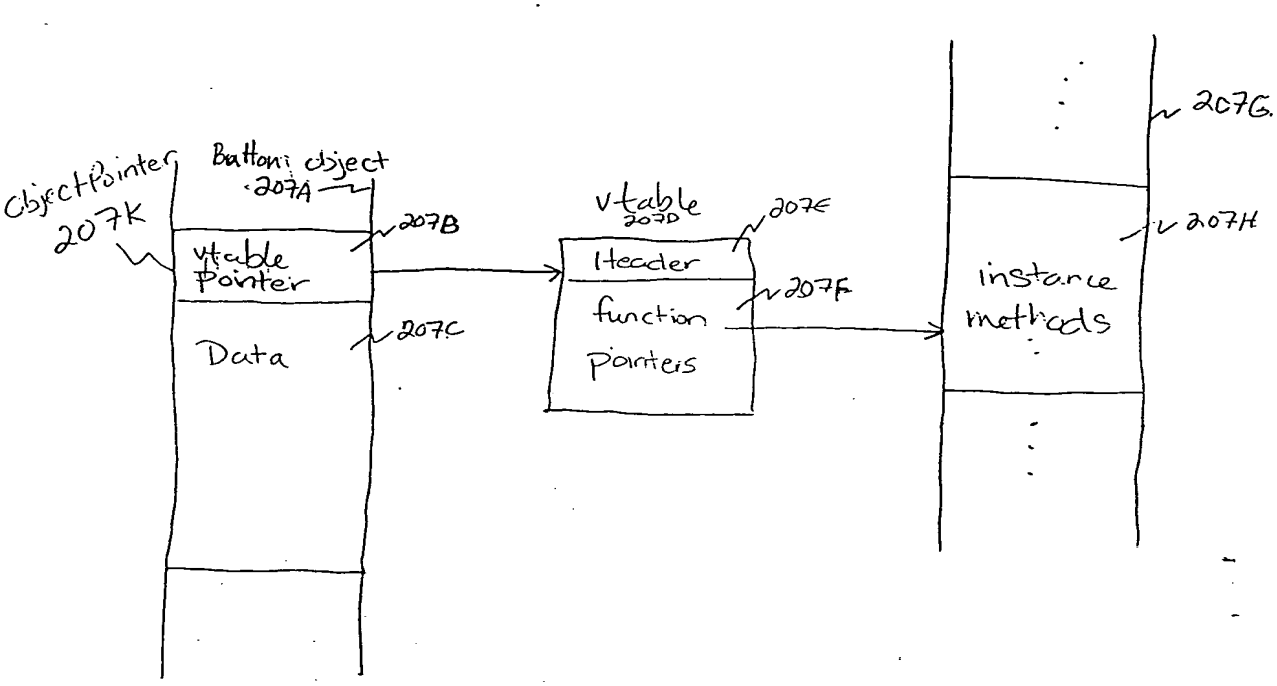

Routine for Optimized Data Modification
206P
Access object pointer in document table.
206Q
Access vtable pointer for access to vtable's function pointers
206R
Access attribute pointer for access to data in content stream.
206S
Read function pointers for access to instance methods
206T
Read Content Stream for access to data pointed to by attribute pointer
206U
Determine requirements of data
206V
Allocate writeable memory according to Requirements.
206W
Decompress & Copy data into writeable memory.
206X
Update attribute pointer to point to data in writeable memory.
206Y
Update vtable pointer to point to instance methods for non-compressed, writeable data.
206Z

FIG. 2F3



RELATED ART
FIG. 2G

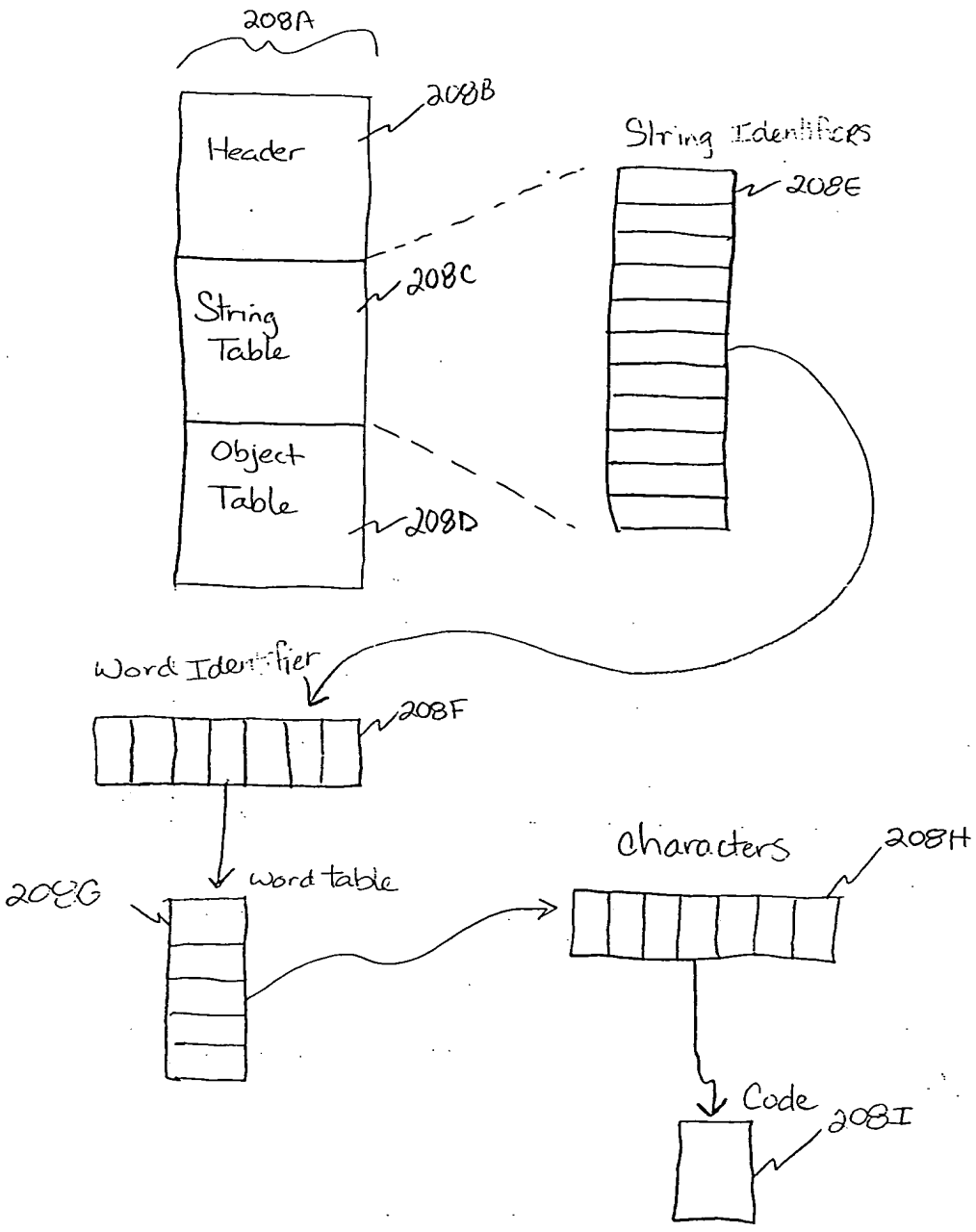

208A
208B
Header
String Identifiers
208E
208C
String Table
Object Table
208D
Word Identifier
208F
208G
word table
Characters
208H
Code
208I

FIG. 2H

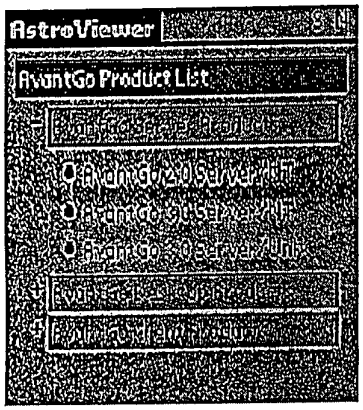


FIG 2I1

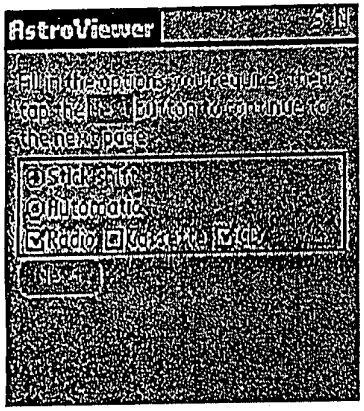


FIG. 2I2

TOSCO 9821260

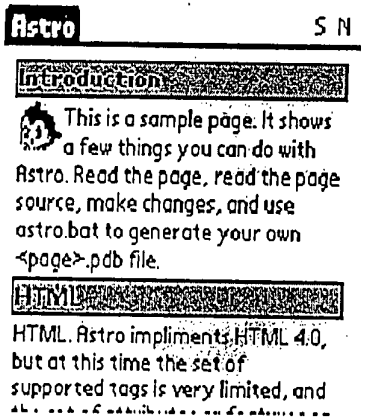


FIG. 2J

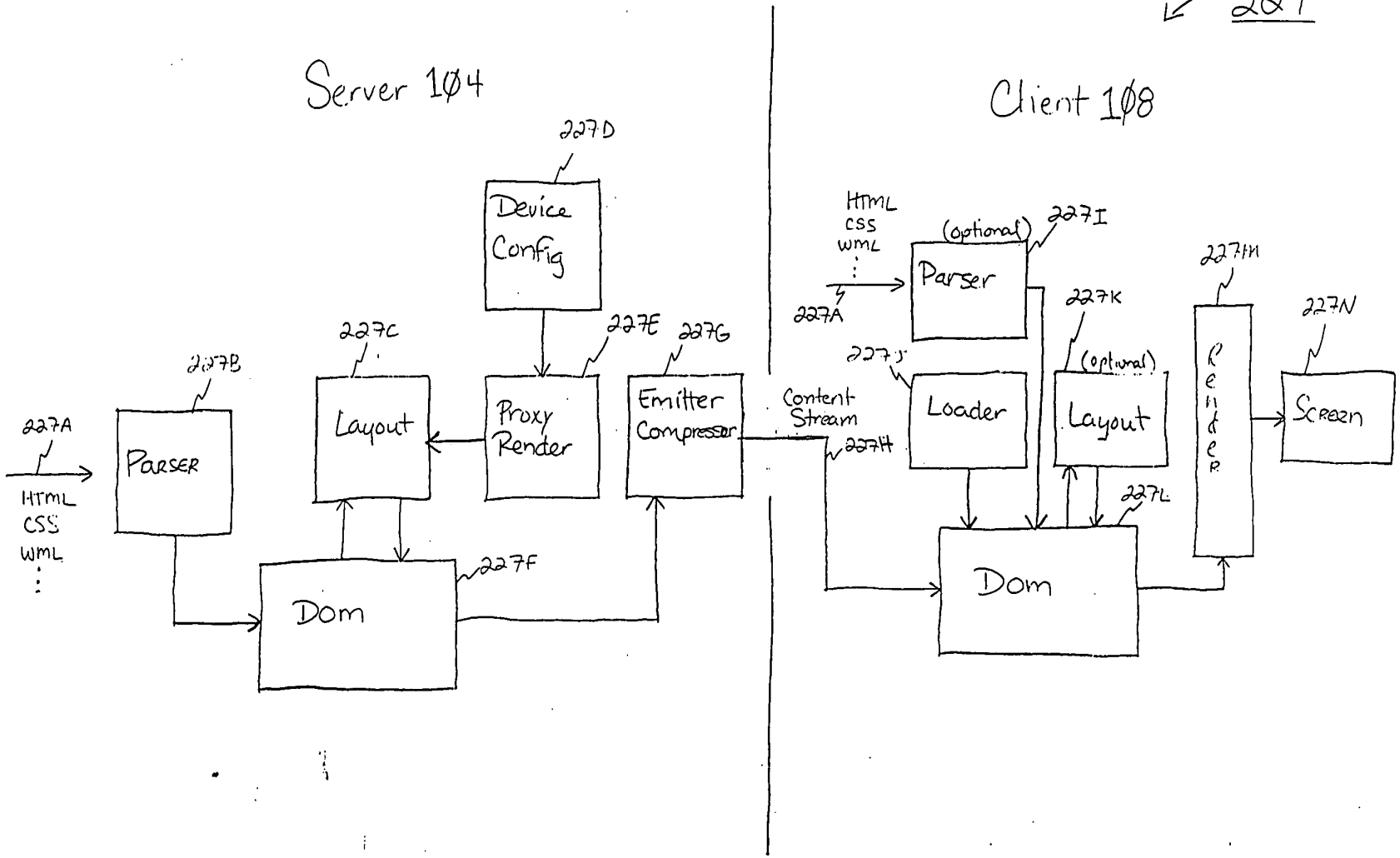

227
Server 104
Client 108
227D
Device Config
227C
227E
227G
227B
Layout
Proxy Render
Emitter Compressor
Parser
227A
HTML
CSS
WML
Dom
227F
Content Stream
227H
HTML
CSS
WML
227A
(optional)
227I
Parser
227J
Loader
227K
(optional)
Layout
227L
Dom
227M
Render
227N
Screen

FIG. 2K

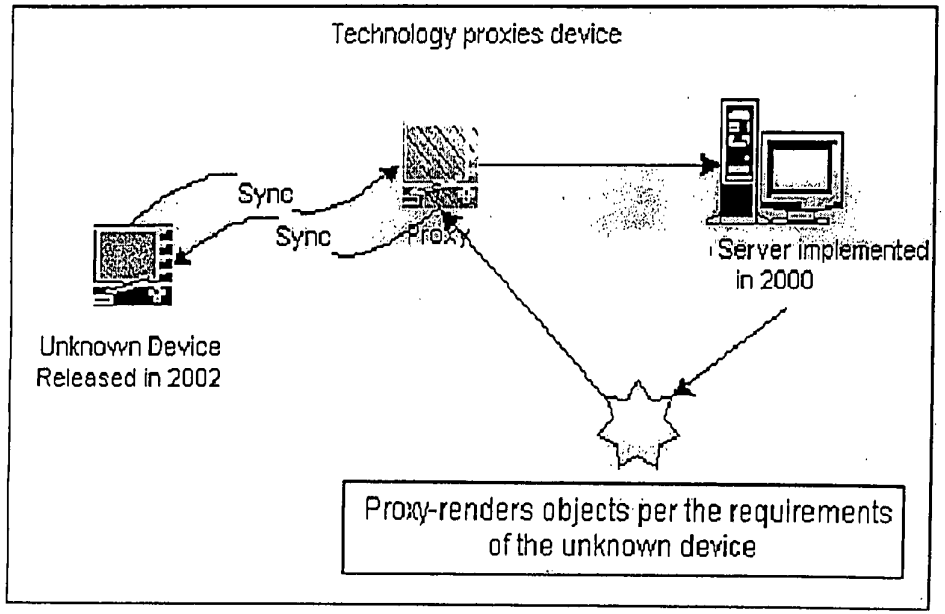

Technology proxies device
Sync
Sync
Proxy
Server implemented in 2000
Unknown Device Released in 2002
Proxy-renders objects per the requirements of the unknown device

FIG. 2L

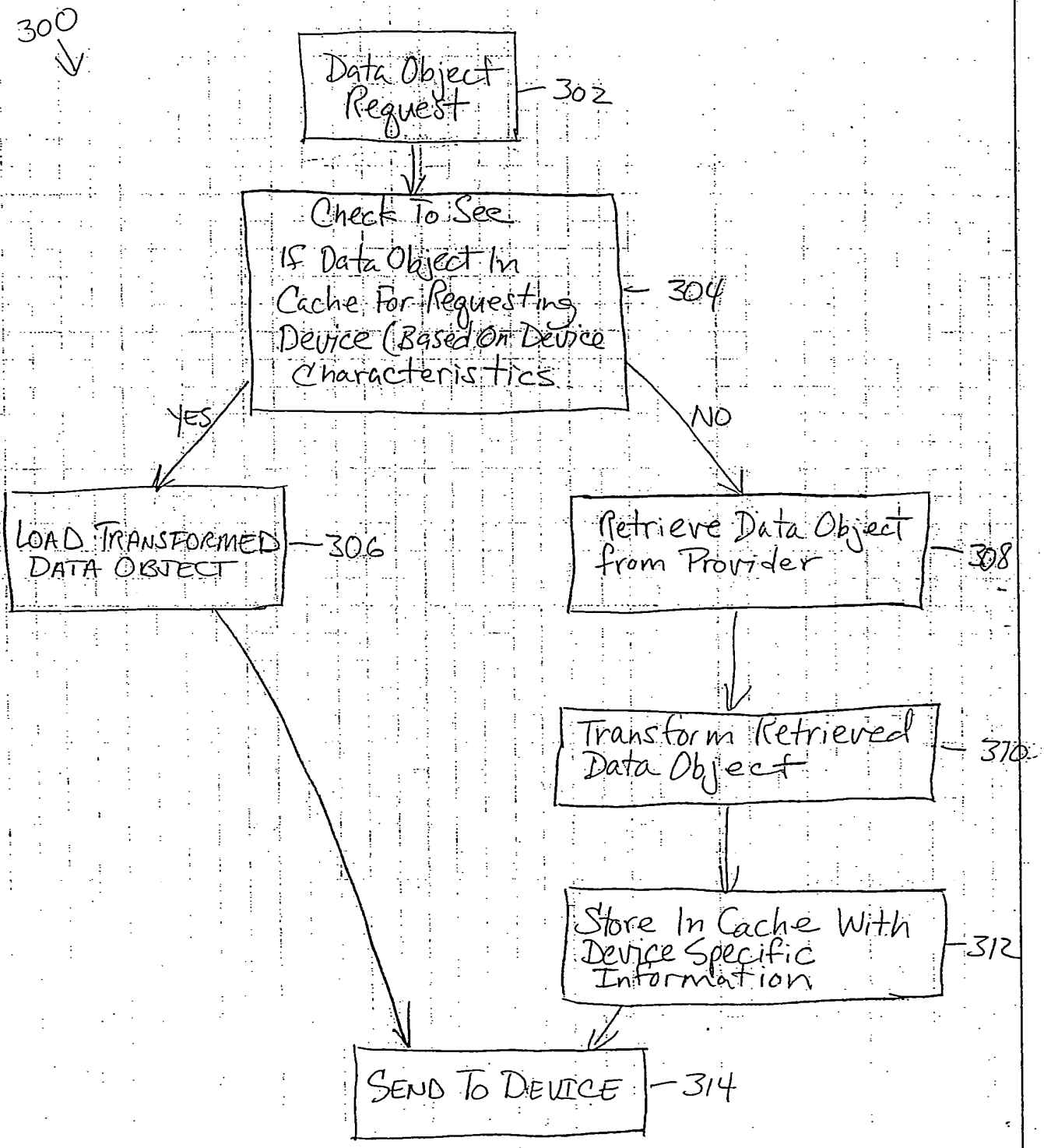

300
Data Object Request
302
Check To See If Data Object In Cache For Requesting Device (Based On Device Characteristics
304
YES
NO
LOAD TRANSFORMED DATA OBJECT
306
Retrieve Data Object from Provider
308
Transform Retrieved Data Object
310
Store In Cache With Device Specific Information
312
SEND TO DEVICE
314

FIG. 3A

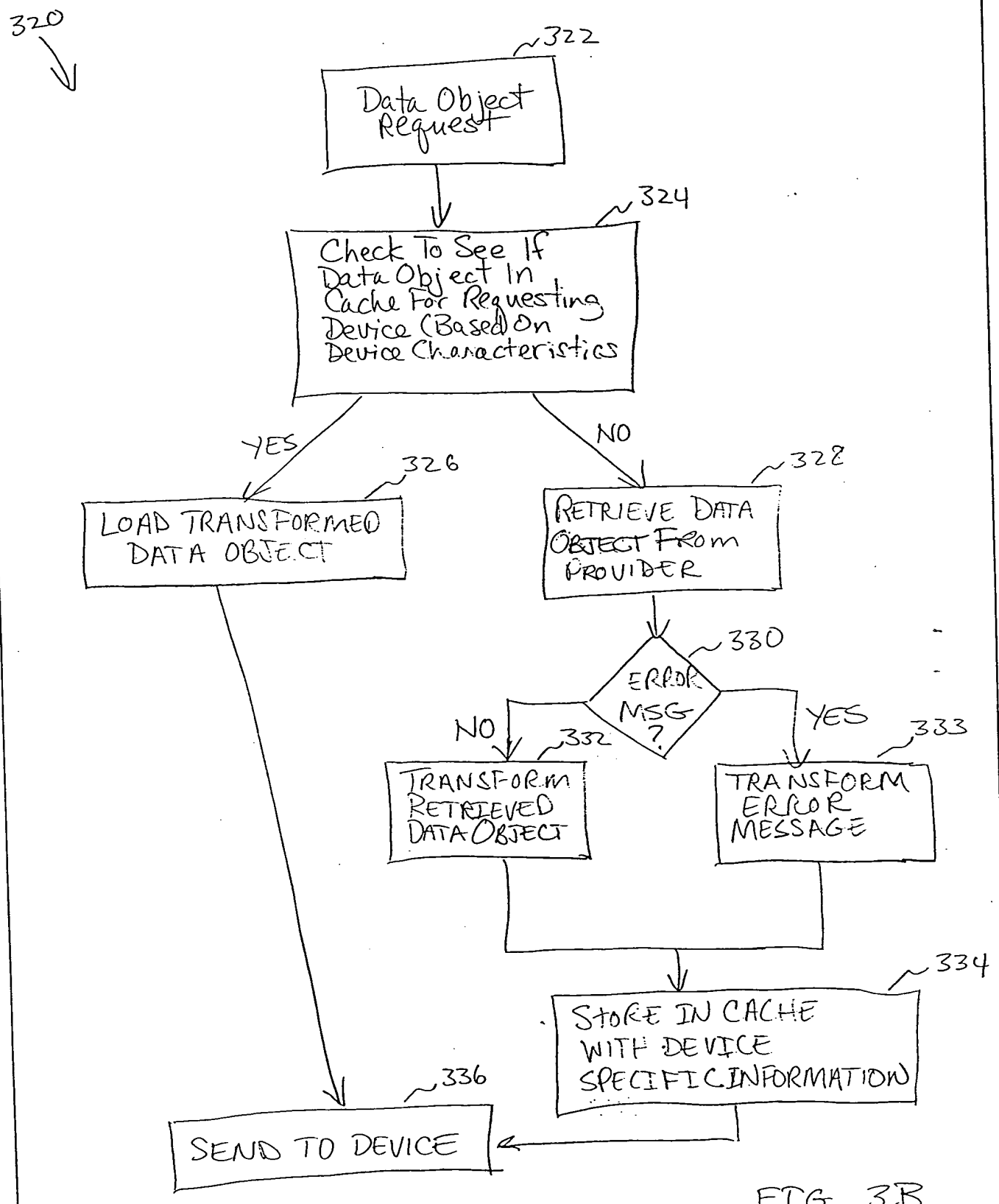

320
322
Data Object Request
324
Check To See If Data Object In Cache For Requesting Device (Based On Device Characteristics
YES
NO
326
LOAD TRANSFORMED DATA OBJECT
328
RETRIEVE DATA OBJECT From PROVIDER
330
ERROR MSG ?
NO
YES
332
TRANSFORM RETRIEVED DATA OBJECT
333
TRANSFORM ERROR MESSAGE
334
STORE IN CACHE WITH DEVICE SPECIFIC INFORMATION
336
SEND TO DEVICE

FIG. 3B

TOSOTO 952.1260

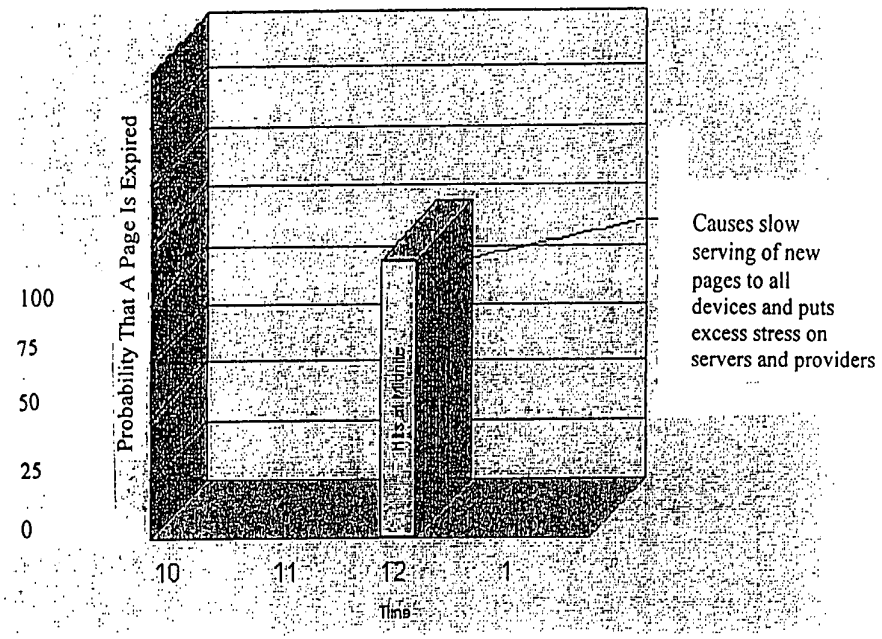


FIG. 3C

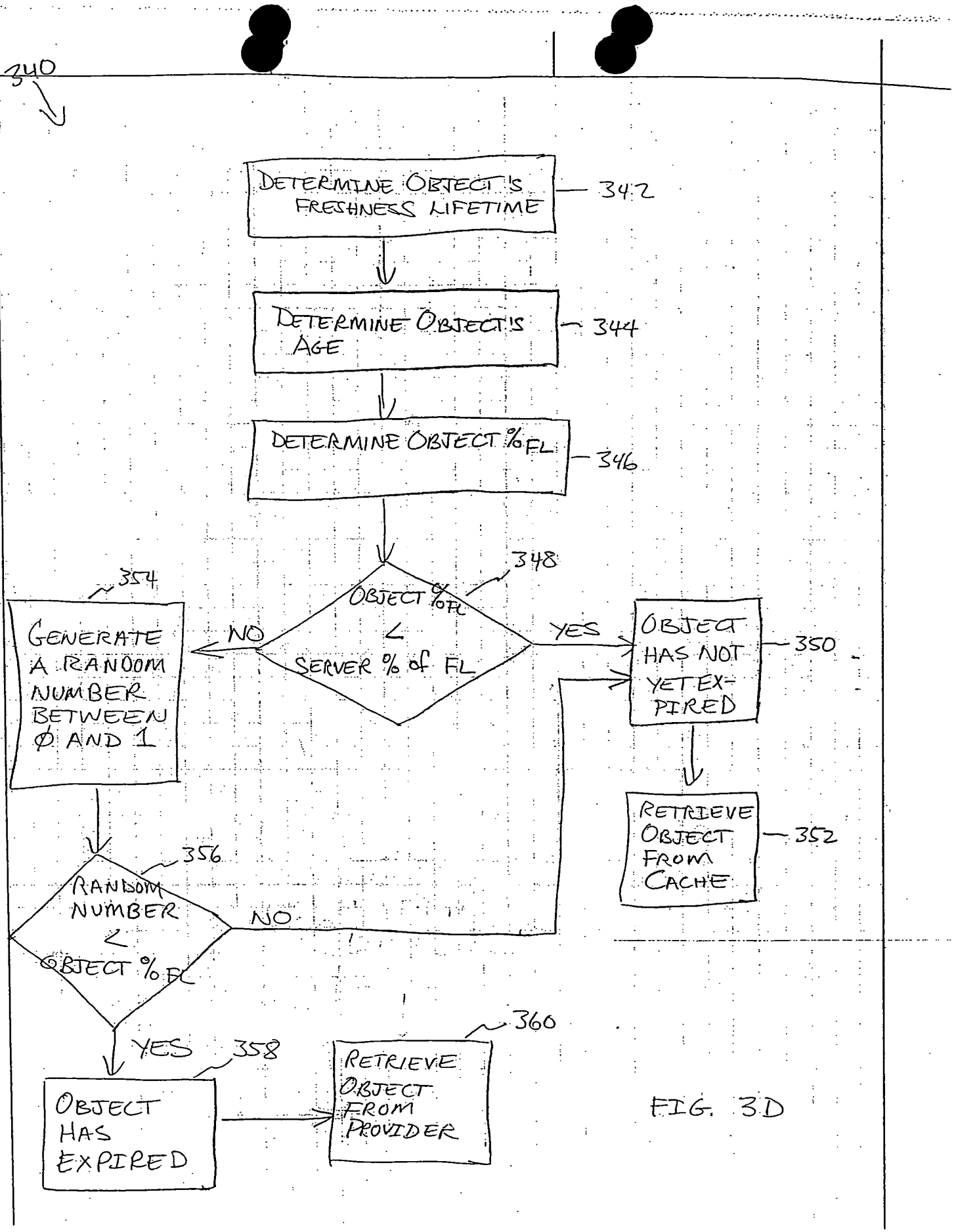

340
DETERMINE OBJECT'S FRESHNESS LIFETIME
342
DETERMINE OBJECT'S AGE
344
DETERMINE OBJECT %FL
346
348
OBJECT %FL
SERVER % of FL
NO
YES
354
GENERATE A RANDOM NUMBER BETWEEN Ø AND 1
OBJECT HAS NOT YET EXPIRED
350
RETRIEVE OBJECT FROM CACHE
352
356
RANDOM NUMBER
OBJECT %FL
NO
YES
358
OBJECT HAS EXPIRED
360
RETRIEVE OBJECT FROM PROVIDER

FIG. 3D

TOSOTO 9921S260

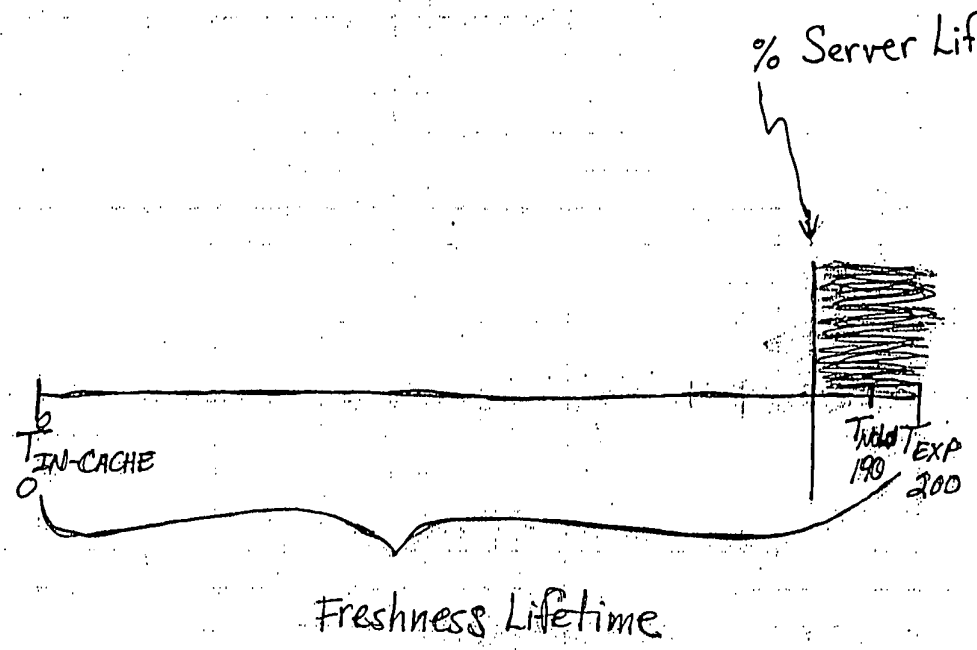


FIG. 3E

Made in U.S.A.
42-399 200 RECYCLED WHITE 5 SQUARE
42-392 100 RECYCLED WHITE 8 SQUARE
42-389 200 SHEETS EYE-EASE® 8 SQUARE
42-382 100 SHEETS EYE-EASE® 8 SQUARE
42-381 50 SHEETS EYE-EASE® 5 SQUARE
National® Brand

TOSOTO 9S2i:S2S0

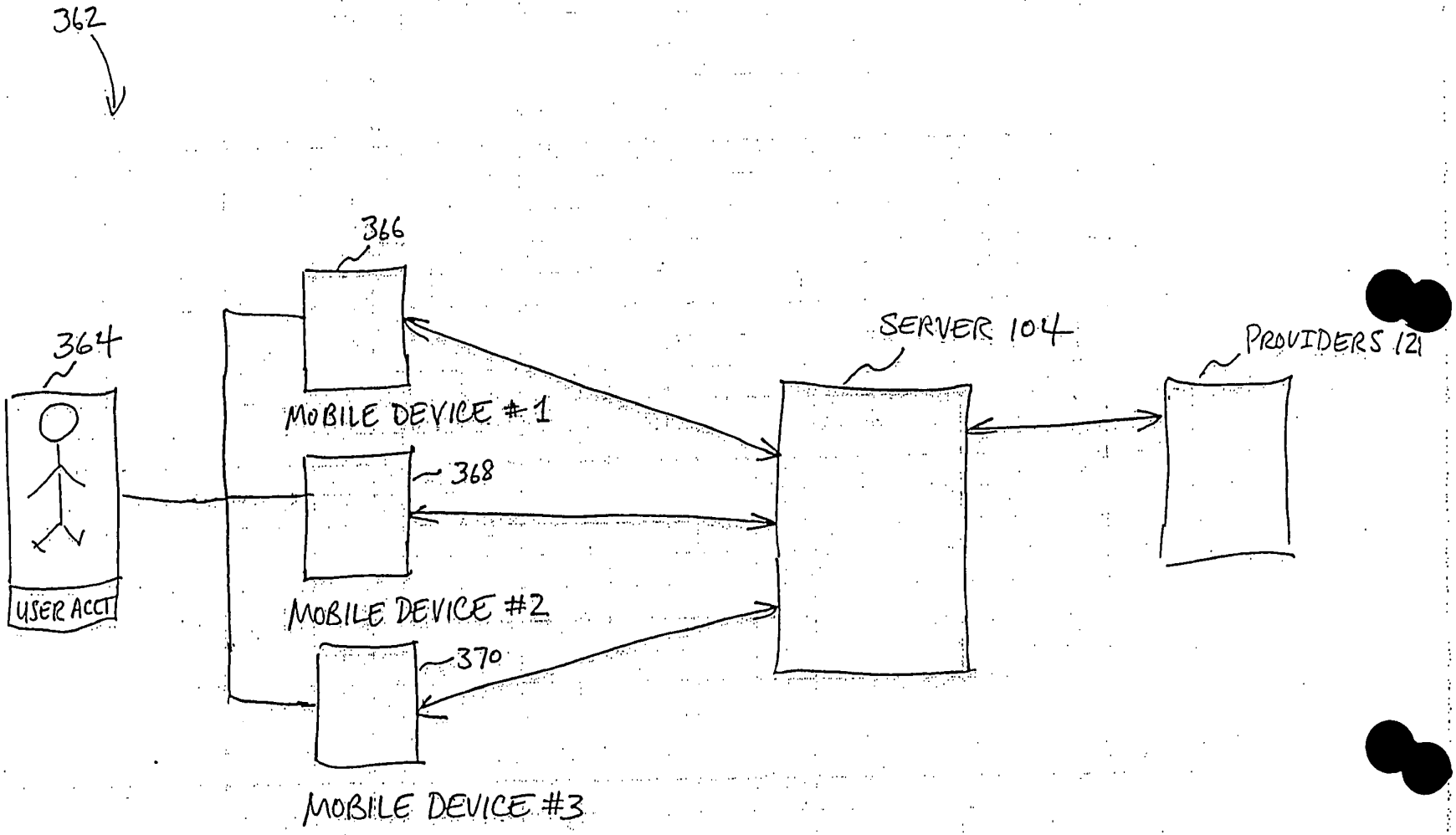


FIG. 3F

National Vulcanized Fiber
42-389 200 SHEETS EYE-EASE® 5 SQUARE
42-392 100 RECYCLED WHITE 5 SQUARE
42-399 200 RECYCLED WHITE 5 SQUARE
Made in U.S.A.

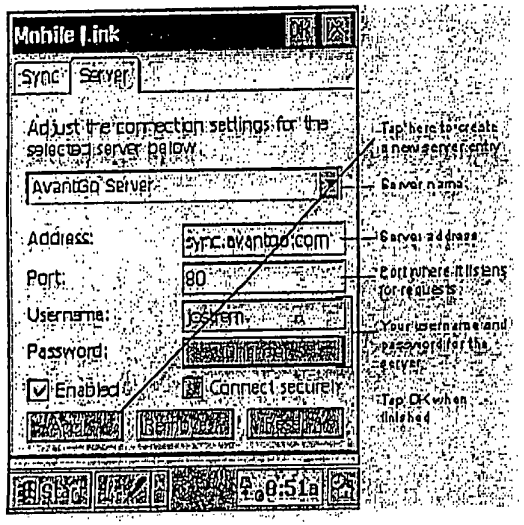

Mobile Link
Sync
Server
Adjust the connection settings for the selected server below.
Avantgo Server
Address:
sync.avantgo.com
Port:
80
Username:
Password:
Enabled
Connect securely
Tap here to create a new server entry.
Server name.
Server address.
Port where it listens for requests.
Your username and password for the server.
Tap OK when finished.
Start
8:51a

FIG. 3G

TOSATO 9521S260

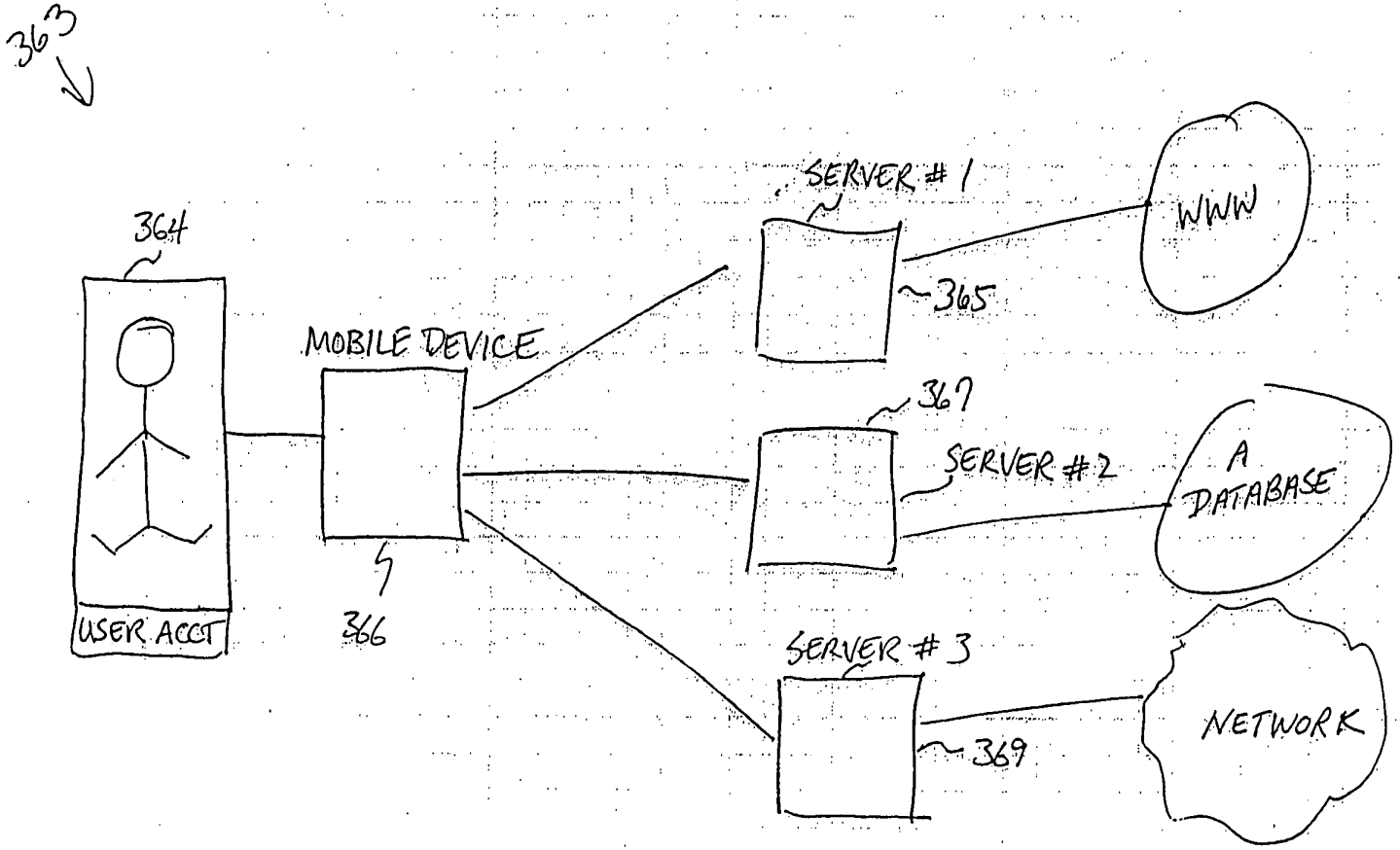


FIG. 3H

Made in U.S.A.
42-392 200 RECYCLED WHITE 8 SQUARE
42-391 100 RECYCLED WHITE 8 SQUARE
42-389 200 SHEETS EYE-EASE® 8 SQUARE
42-387 100 SHEETS EYE-EASE® 8 SQUARE
National® Brand

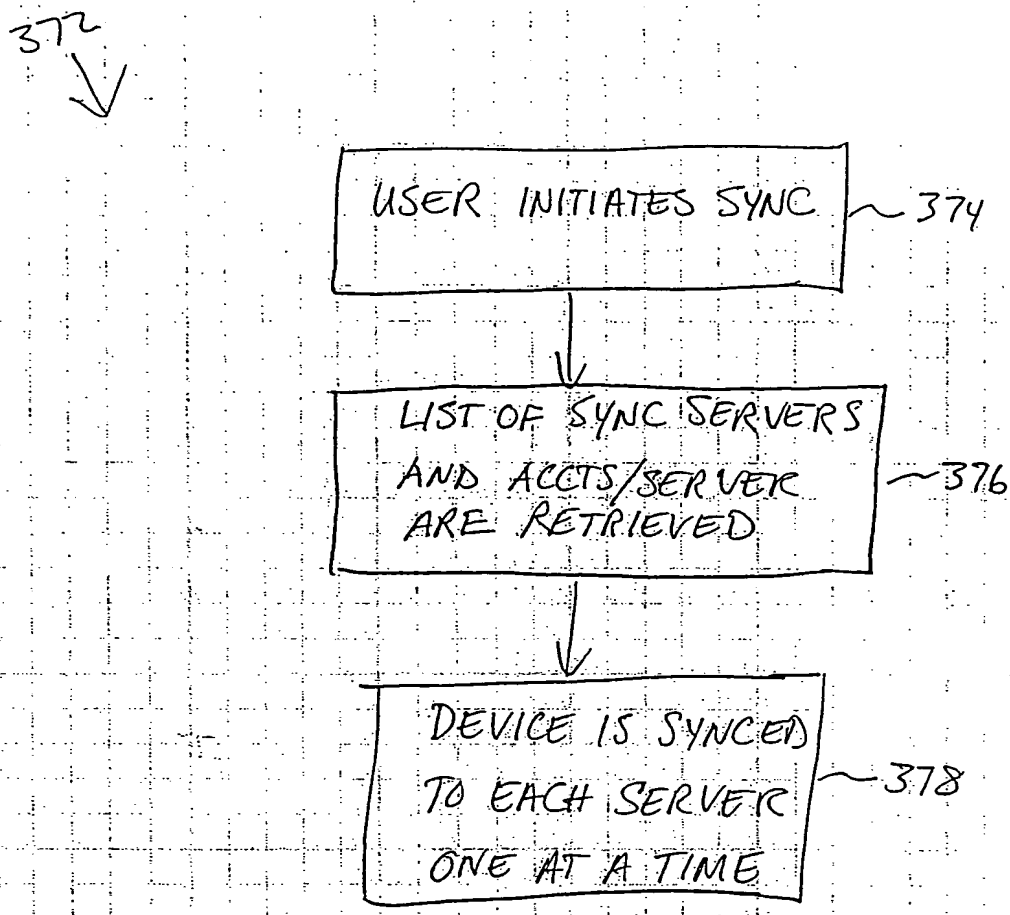

372
USER INITIATES SYNC
374
LIST OF SYNC SERVERS AND ACCTS/SERVER ARE RETRIEVED
376
DEVICE IS SYNCED TO EACH SERVER ONE AT A TIME
378

FIG. 3I

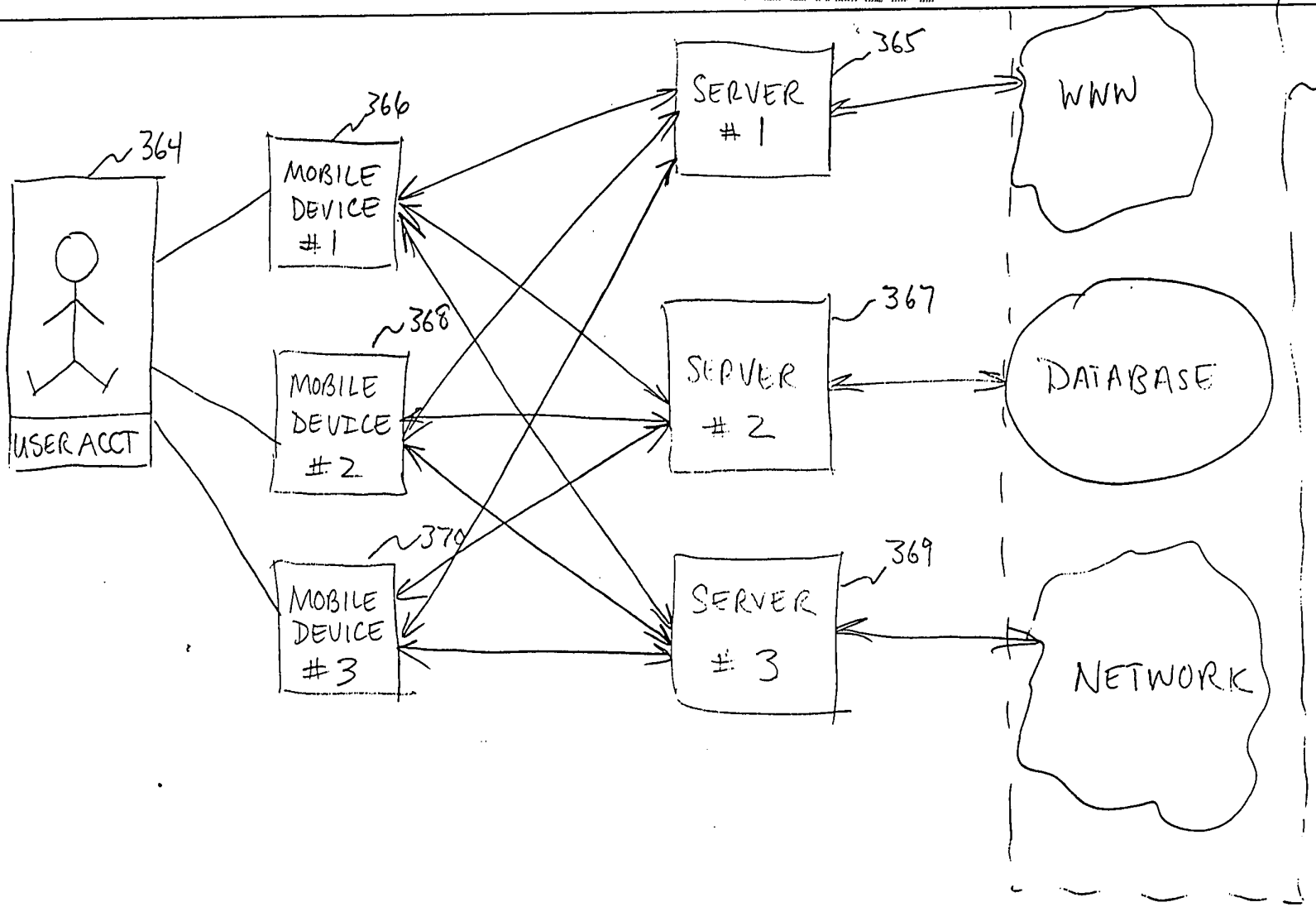


FIG. 3J

National Brand
42-301 50 SHEETS EYE-EASE® 5 SQUARE
42-302 100 SHEETS EYE-EASE® 5 SQUARE
42-360 100 RECYCLED WHITE 5 SQUARE
42-362 200 SHEETS EYE-EASE® 5 SQUARE
42-369 200 RECYCLED WHITE 5 SQUARE
Made in U.S.A.

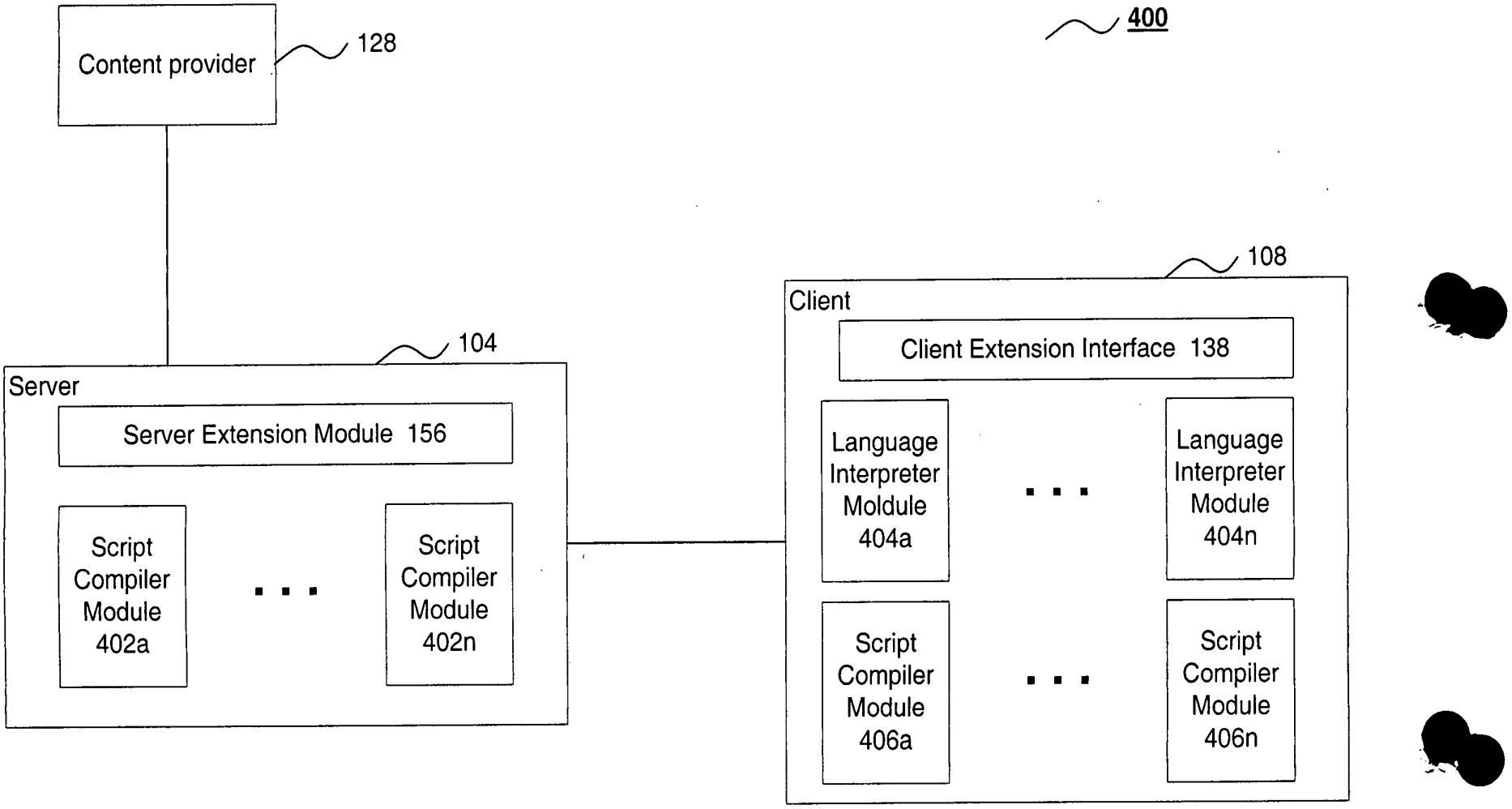


FIG. 4

0004-07.vsd/1

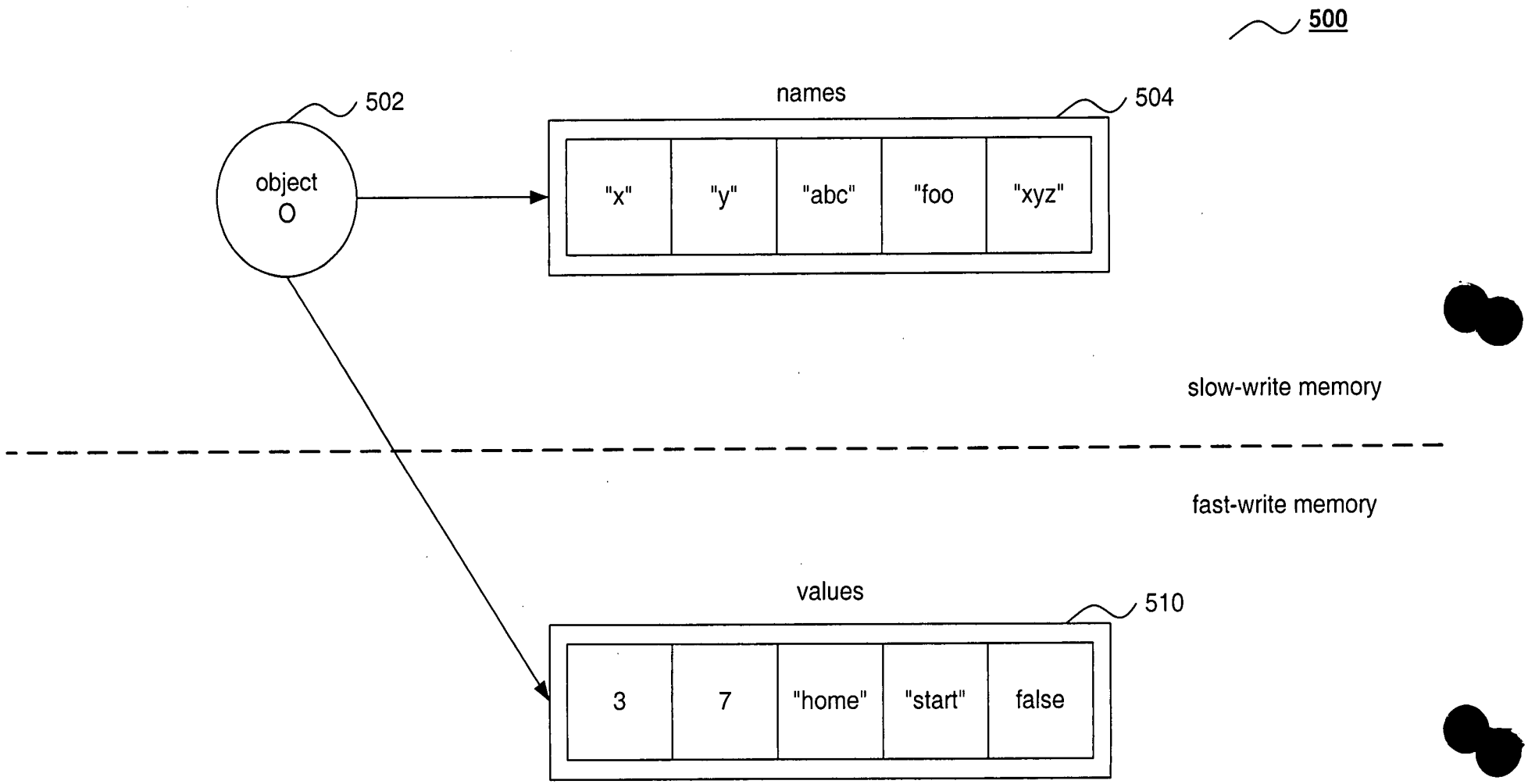

500
502
names
504
object
O
"x"
"y"
"abc"
"foo"
"xyz"
slow-write memory
fast-write memory
values
510
3
7
"home"
"start"
false

FIG. 5

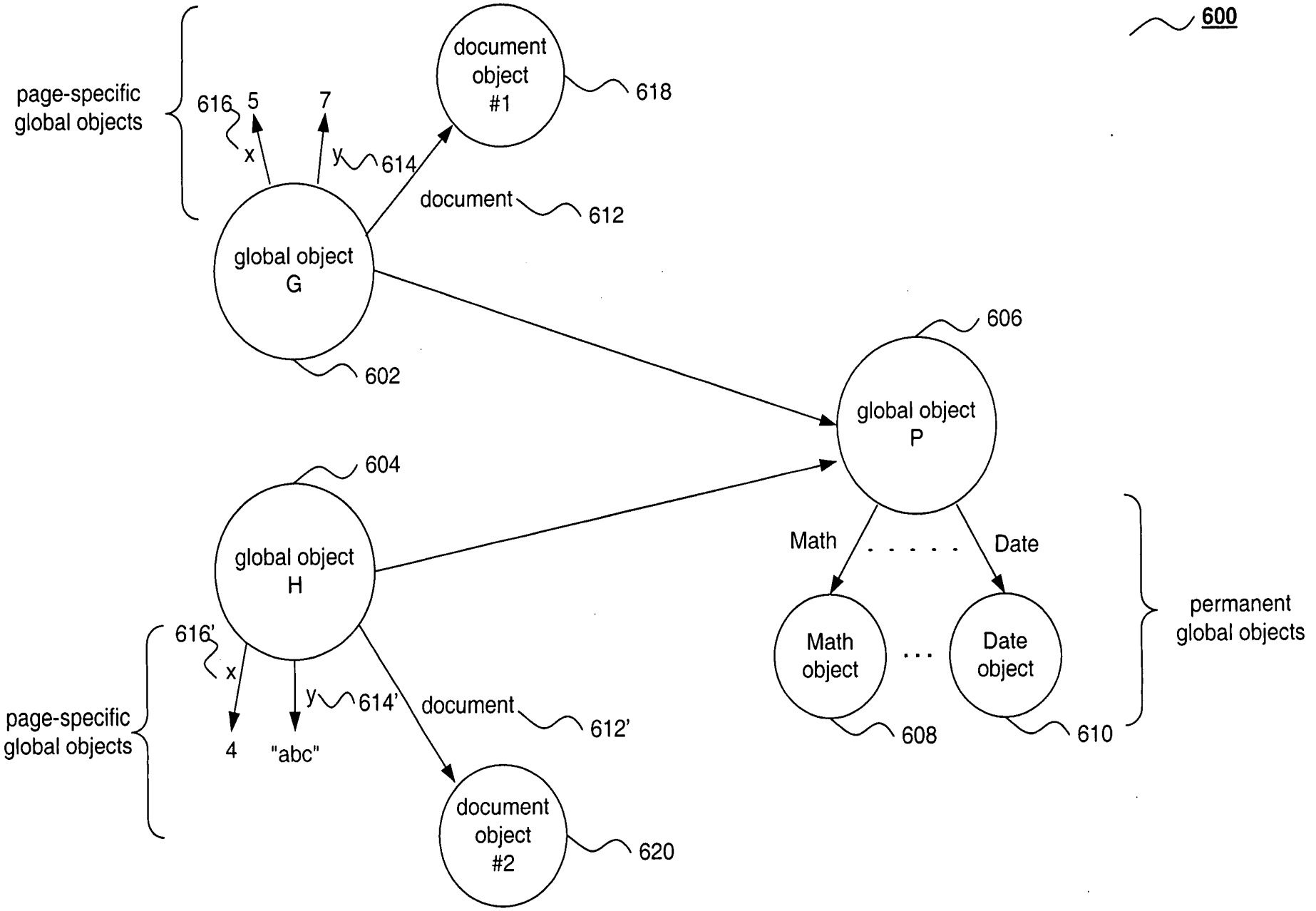


FIG. 6

0004-07.vsd/3

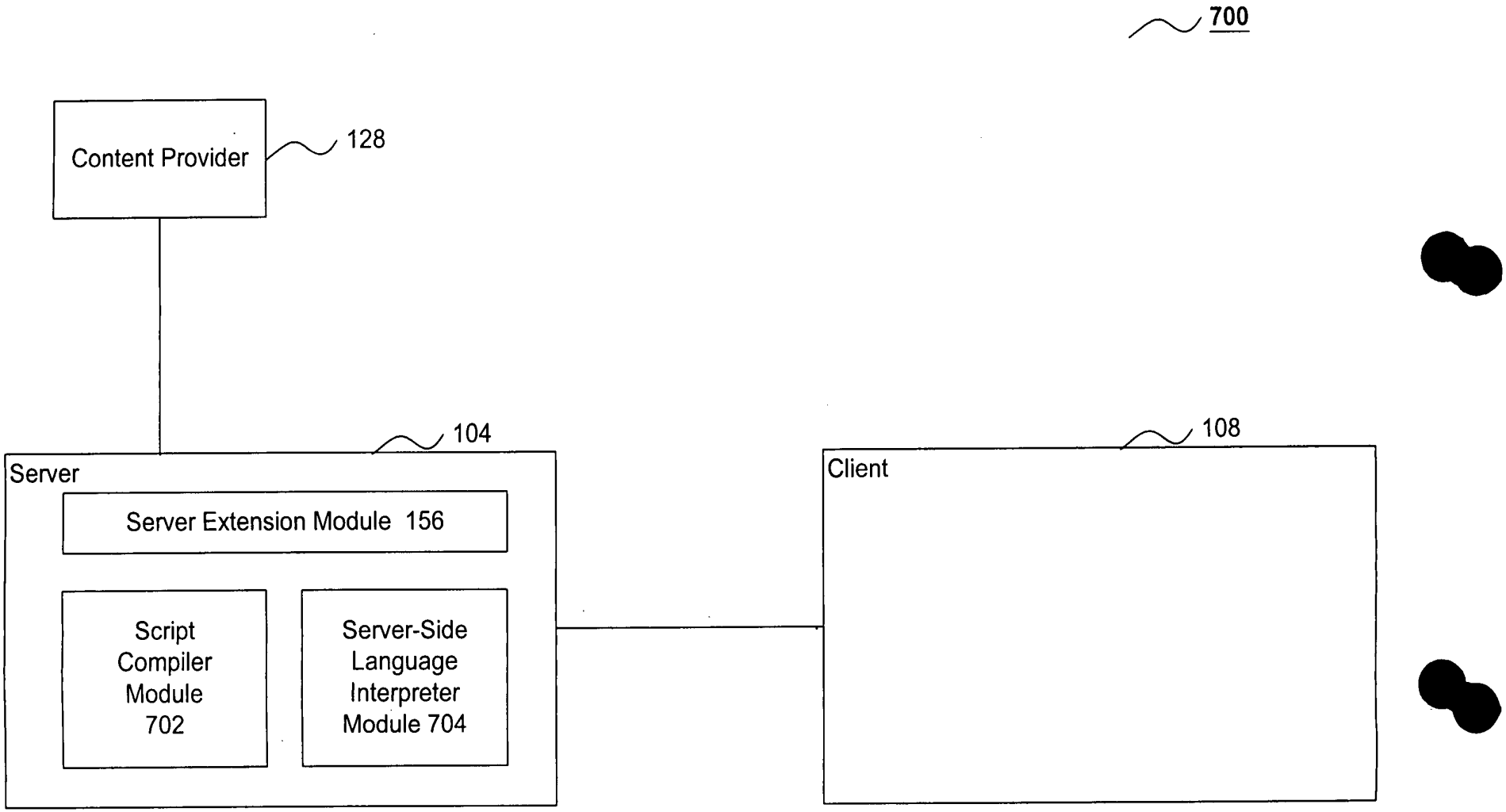


FIG. 7

0004-07.vsd/4

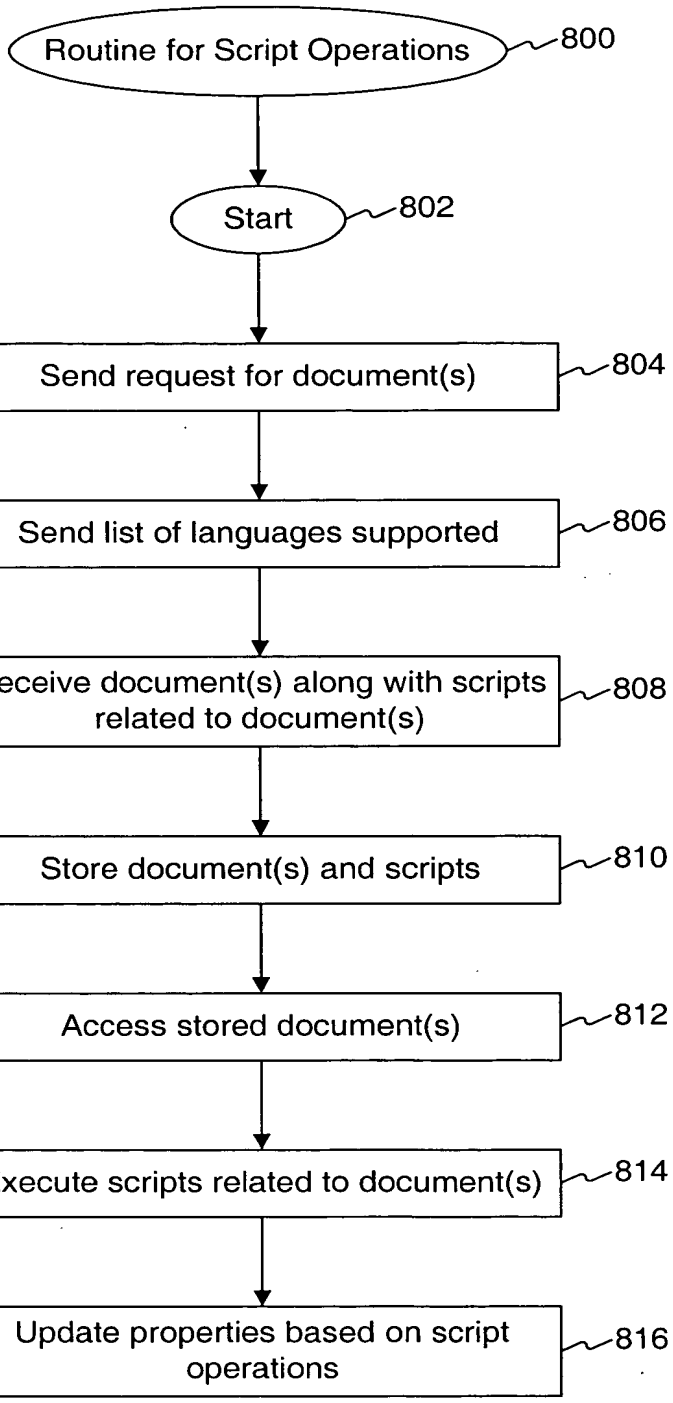

Routine for Script Operations
800
Start
802
Send request for document(s)
804
Send list of languages supported
806
Receive document(s) along with scripts related to document(s)
808
Store document(s) and scripts
810
Access stored document(s)
812
Execute scripts related to document(s)
814
Update properties based on script operations
816

FIG. 8

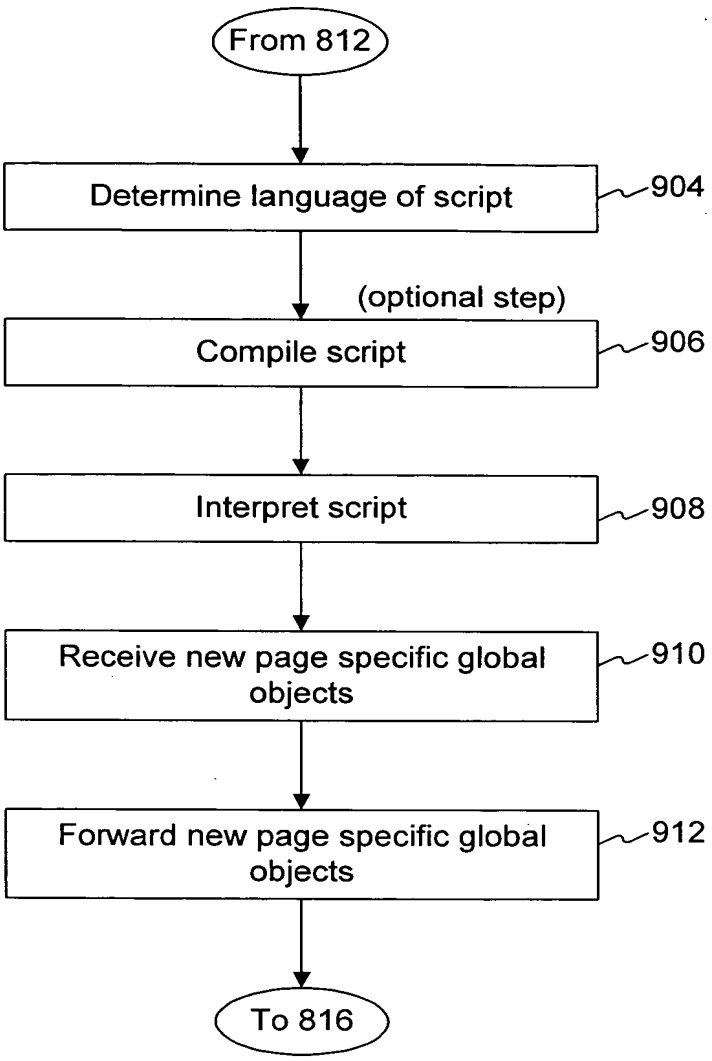

814
From 812
Determine language of script
904
(optional step)
Compile script
906
Interpret script
908
Receive new page specific global objects
910
Forward new page specific global objects
912
To 816

FIG. 9

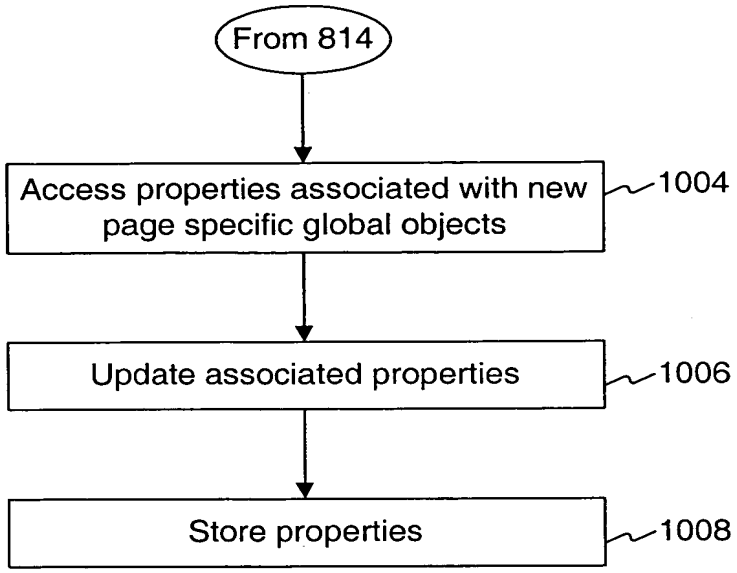

816
From 814
Access properties associated with new page specific global objects
1004
Update associated properties
1006
Store properties
1008

FIG. 10

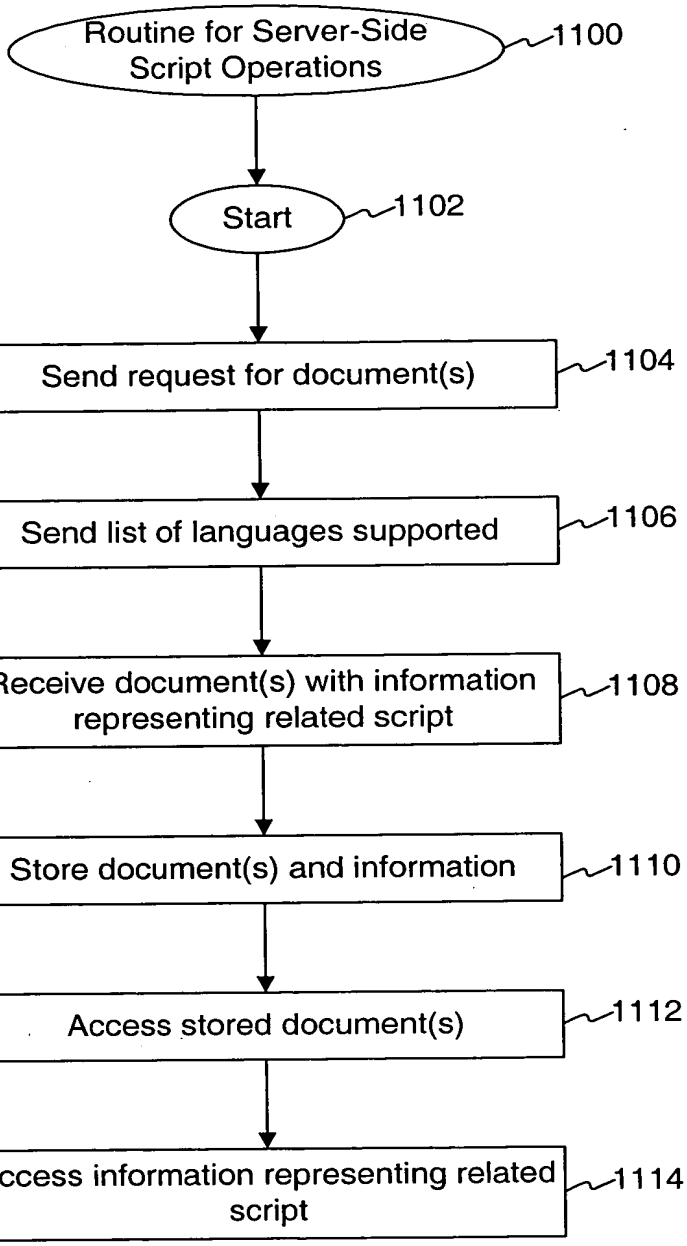

Routine for Server-Side Script Operations
1100
Start
1102
Send request for document(s)
1104
Send list of languages supported
1106
Receive document(s) with information representing related script
1108
Store document(s) and information
1110
Access stored document(s)
1112
Access information representing related script
1114

FIG. 11

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